The Forum.

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WHAT CAN WE DO FOR THE POOR?

A GENERATION or two ago, many people thought it not visionary to suppose that this new western world of ours might escape some of the painful evils which have so sorely afflicted the old. The youngest and fairest of the peoples could surely be spared the discipline of poverty and inherited misery. This seemed reasonable and probable to our forefathers; we know now that it could not be. While, under the freer conditions of our continental life, self-dependence and individual energy were to be nourished and developed in our people to a high degree, these could not by any means do away with or overcome the evils of unavoidable destitution. Gradually the rich became richer and the poor poorer. As in the older civilizations, wealth rolled up in a few hands. The laws of human existence were found to be the same in both hemispheres; the struggle for existence was the same old struggle.

We have, then, outlived any misconception that our forefathers had on this point; and all men with eyes and ears know well to-day that, in the making or marring of our national future, poverty must play its part. The questions that it forces on us must somehow be answered, and answered now; they can no longer be laid aside. We may be far from realizing all that is meant in the declaration that God "hath made of one blood all nations of

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men, . . . for in him we live, and move, and have our being"; but we are far nearer its realization than men have ever been before. We may not love our brother as ourselves; we may not be quite prepared—if I may illustrate from the old story—to put him on our own beast, to bind up his wounds with our hands, and to take him to our own inn; but we are prepared to pay something for his keep and doctoring. We cannot nerve ourselves to leave him wounded and bleeding by the wayside, even though we may argue that he has fallen among the thieves largely by his own fault.

And so it comes about that, often in a blundering, unwise, and even improvident way, a large and increasing number of people are prepared to do something to serve the poor. Here I may be permitted to beg indulgence for what may appear to many a very inadequate method of dealing with the great question. I can speak of this problem only as it has engaged, in a measure, my own life. The city clergyman is like a line officer in battle; he stands pretty well in the smoke, or at least he ought to stand there. His circumstances seldom afford opportunities of gaining the larger, clearer views that only those on the higher ground can command; he can see things in his immediate front, and that is about all. Immediately in front, then, what does he see? As in every battle, an immense amount of wasted energy, a great deal of misdirected and positively hurtful enthusiasm, and much good ammunition thrown away. Helping the poor is both overdone and not done at all. Gifts are bestowed on those who are least worthy, but who, through long practice, can make the best showing of their needs. Those in whose lives independence is almost dead do not shrink from parading their wants; and a luxurious pity, anxious to rid its conscience of the burden of another's pain, is too often ready to give its hurtful dole, and to add to its list of luxuries the luxury of giving. This may seem an extreme way of describing the prevalent evil of indiscriminate charity; but that evil is so pernicious and so common, it renders the real and necessary work so hard to do, and, worst of all, it is so often adopted as an excuse by the very people that owe to their poor fellow men something far more than a dole, that it is hard to be patient with it. Lately it has laid hold of our news-

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papers. Their objects in establishing Christmas treats and Summer excursions may be quite free from all secondary considerations of self-advertisement, but sometimes they do more harm than good to the class that they attempt to benefit. The bold, pushing children are, of course, at the front; and some of those youthful debauchees can accomplish an extraordinary amount, and absorb wonderfully, during a few days. All who know the poor, know what demoralization Christmas brings among the children, what little real happiness or good results from the flood of presents that pours in for a short time, and how great premiums on greed, untruthfulness, and cunning these unthinking gifts really are. Through them the little ones are gaining dangerous glimpses of how much can be got for nothing by the smart child who knows the streets and their ways.

On the many partially-satisfactory efforts to grapple with the problems of the poor, it is needless to dwell. These efforts are increasing in strength, influence, numbers, intelligence, and efficiency, and doing more permanent good each year; yet we are not satisfied with them, nor should we be. We feel that we are but scraping the soil with a harrow, while it needs a steam plow. In spite of our efforts, the horrid, desolating tide of poverty is rising more rapidly than we can build our dykes to keep it out. To seek a certain comfort in the inevitableness of poverty, as some do, is impossible now to many, and will in a few years be impossible to any thinking, feeling man. All such men are quickly arriving at an agreement that something must be done, though no one seems to know exactly what it is or how to do it. The reception given to General Booth's scheme is a proof of this—a proof that a great and increasing band of able men and women are willing to follow as soon as a leader shall appear. As yet the leader has not come to them, and the scheme has not been propounded; nor, in my judgment, shall we quickly see either leader or plan. We may lay certain solid foundation stones, however, on which men of larger powers and of clearer vision may raise a great and everlasting superstructure. Such work as we do should be done so thoroughly that it will never need to be done over again. We may not be able to uproot poverty's bitter thistle crop, but upon parts of the field we can do something more

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than merely to experiment—we can clear them. The problem presented to us is the most difficult one conceivable; but we have a certain accumulation of experience to call to our aid, and the half-dormant energy that is manifesting itself in the public will support any effort that seems to promise even partial success. First, I would say that any effort to reduce the tide of poverty, worth making, must deal with the sources whence that tide springs. Here is the weak spot in General Booth's scheme. Even if he could get his money, if necessary authority should be granted him, if his splendid idea could be fully accomplished, he would be like a man trying to pump out a ship through whose sides, by a thousand leaks, water is pouring. Any scheme that aims at floating the ship must, as an important part of it, devise means of calking those gaping seams. His scheme in no way deals with the homes and home influences of the poor, which are largely responsible for the worst elements of poverty. Most of the efforts put forth to-day to help the poor fail right here; they do not touch the sources of the evil. Let us look briefly at some of those sources. Foremost among them is the indifference of the poor themselves—their apathy as regards their own condition. They will not help themselves; they will not do what they can. One whose knowledge of these matters is much more accurate than mine, and who has lived and worked among the poor of New York for years, said to me recently:

"Our block is dirty. Why? From late in the afternoon of one day till the morning of the next, a solid row of vans stands against the sidewalk. These vans accumulate dirt. If the inhabitants of the block should unite in a protest, the law would, of course, be obeyed, the vans would be removed, and the streets would be cleaned, or at least they would be made cleaner; but the people are too indifferent to unite. Again, the law requires all landlords to whitewash their tenements once a year. If any neglect of this important provision should be met by a united protest from the tenants, it could not be so commonly ignored as it is now; but, for one cause or another, the poor will not unite. There is little fellow feeling among them—not even interest enough to induce them to interfere on each other's behalf when the weaker is wronged by the stronger. Nine times out of ten there are a hundred onlookers at a fight, but not one of the number cares enough to interfere, even to save from outrage a neighbor who may have lived near him for years. The multi-national nature of our population accounts in a measure for this, but the difficulties in the way of

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the creation of something like a common human interest only make the creation of any such feeling more imperatively necessary."

Another source of the worst sort of poverty is drunkenness. Among "the trades" there are few cases of need that do not arise from this cause. To pour abuse on the drunkard is easy and common; I cannot join those who do so, for to a great extent he is a victim of his circumstances. All New York tenement-house surroundings provoke to drunkenness; they combine and embody all the evils of crowding, heat, stench, and utter ugliness. In them privacy, decency, purity, have to struggle for existence against their environment. Besides, men and women who are honest with themselves, who do not live in tenement houses, in whose lives all sweet and beautiful things move and grow, whose leisure is abundant, and whose environment makes for good, know full well that there is something in the heated, high-strung, pleasure-loving spirit of our times which makes it necessary for the best and strongest among us to fight hard in order to maintain, even in society, a worthy standard of purity. Drunkenness, gambling, and impurity generally go together, at least in our own day. The reasons why they do so are not hard to find; I cannot now pause to repeat or to emphasize them. But that they do, all who know anything of New York tenement-house life know well. To grapple with poverty in its worst and most destructive phase, we must grapple with these sources. We must do our fighting not only with individuals, but, as I have said, with causes. We must improve the tenement house, since we cannot abolish it; we must compete with the saloon. The improvement of the tenement house cannot be brought about by outside influence; an inside force is needed, and that a mighty force—a force that is intelligent and in the best sense Christian; a force that is not put forth fitfully or spasmodically, but bases its determination on a comprehensive survey of the situation. We need Peabody funds, such as the London bequest, on an immense scale; for in New York the crowd is greater and the climate more trying than even in London. We need, in short, such a state of aroused feeling and awakened conscience, of common pity and justice, as must lead our rich men to recognize the awful needs of the huddled masses. Sooner or

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later, at huge cost if necessary, the rich must lead the way in giving air and breathing space, baths and recreation grounds, to those hundreds and thousands who for want of them are so grievously pressed down toward feebleness of body and viciousness of character. How long shall we see vast fortunes devoted only to the endowment of a degenerating offspring? How long shall so-called Christianity tolerate conditions of life that make for evil and not for good?

The so-called homes of the poor are no homes, in the sense in which we understand the word. The poor have no clubs but public houses. With an ignorance that is as fatal as it often is conscientious, unstinting abuse is lavished on these, their only resorts, and on those who frequent them, while no effort is made to supply anything in their place. The working people are debarred from enjoying works of art and things of beauty on the only day on which they can view them. The church, so far as it is Protestant, has almost deserted them, and in New York the public schools refuse to take their children till these have arrived at the age when the seeds of vice have been too effectually sown. Let me dwell on this important aspect of the question a moment. The wife of a working man, even if he is master of a good trade, or is in a position to earn steady and sufficient wages, cannot expect to bring up a family in more than three rooms, on the average. The kitchen is the living room, and, do what she will, the mother cannot keep her children around her. If the elder ones go to school, the little ones are her problem. They will play, they must play; but where? On the sidewalk and in the court? Here the worst little rascal in the block proudly rules as undisputed king. All he knows he imparts; his "secrets" are his power. Many mothers see the evil of all this, and some of them try to keep their little ones from other children, but most of them accept the inevitable. They would pay for kindergartens gladly, but kindergartens are few and far between. In the Tenth Ward of New York City, where are 57,000 children, there is only one kindergarten, accommodating but 50 scholars. The children who are old enough to go to school are in a sad way. They must not play baseball or any other athletic game; to do so is to make themselves liable to

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arrest. They have no playgrounds; but gambling with pennies in a corner can be managed easily, and on almost every block there is some house where they can learn the "nobler" games of chance, and things worse even than these. There are houses that specially cater to childish vice—stores having partitions in the rear, behind which children practice prostitution. So long as the street is the only playground for the children, the evil spirits among their number—those who rule in these hells—must exercise a powerful influence on companions who, if they were granted better surroundings, would escape contamination. I am prepared to say that our chief work to-day should be done among the children. Our strength and our time are limited; we want to plant our blows where they will tell most, to sow our seeds where they will have the best chance to grow. A man or a woman who has pursued an evil course from childhood is almost always past help at twenty-five, but the children can be saved. They cannot, however, be saved by public schools, or yet by Sunday schools. They are not being saved; they are passing from bad to worse, and nothing can rescue them but an awakened Christian sentiment, that will not pause till their surroundings have become such as will give the divinity within them some chance to grow.

I have dwelt on the need of outside aid to our poor; but I repeat that even if there should be an abundant supply of such aid —as there is not—radical improvement would still be impossible till an inside co-operating force among the poor themselves should be set at work. How shall we create and develop this force? No scheme that fails to provide for this is worthy of consideration. I do not hesitate to say that the development of this power of self-help, self-respect, and self-dependence, can be, and should be, the work of the Christian church in all her branches. If Christianity cannot, to this extent, leaven the masses of the wage workers, it has failed, and, at least temporarily, must continue to fail. The wild ruin resulting from that failure may recall the church of Christ to a field that her faithless disobedience has led her for a time to abandon. Ethical and merely philanthropic methods are good, and gain temporary success because they are inspired by men who are unconsciously Christian in their senti-

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ments, aims, and spirit; but sooner or later merely ethical movements will be abandoned. They are of necessity doubtful about certain points, where to doubt is to cut the very nerves of effort. They are doubtful, for instance, as to a personal immortality; and, sooner or later, all who enter the lists in this terrific struggle with woe and sin must realize that, if this life is all, then the goal is not worth the struggle, and human life itself is not worth the trouble it costs to make it good and to keep it good. We must hesitate to advise the poor to give birth to children whose pains may be keener than those of their parents, and whose pleasures may be even rarer. This work of development belongs, then, not to ethical societies, but to the Christian church. She believes in the value of man; for in him, be he never so fallen, she sees a spark of everlastingness. She professes to accept her Master's commands as divine laws binding on herself. His words and acts are perfectly plain; he never contemplated the abolition of all poverty, but he did distinctly command that men should, as they valued his gospel and professed obedience to himself, draw near to each other, forgetting and ignoring those things that for a short time made them to differ. He declared that the innermost and eternal verities of our nature all men have in common; and that his followers were to make much of these, while they were to make less of their differences of possession and attainment. Weakness, failure, poverty, were to draw us to our brother, not to drive us from him; for in the prevalence of these drawing, uniting, loving forces, over the sundering and disuniting forces, lay the hope of our race—he called it the coming of the kingdom of the Son of Man. All this we steadfastly believe, yet we condone the present state of things. Many do more than condone it; they are sincerely attached to it, they devoutly believe in its continuance, and so they are unwilling to make any adequate effort to change it. Our rich men still generally attend church; but there is often little in the public teaching of their churches to make them feel that it is their duty, as well as their privilege, to give money to bring about conditions where a civilized life is possible to the thousands whose hands have helped to pile up their fortunes. They are not taught, as they should be, that their wealth is literally not their

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own, and that to dispose of it as if it were their own is to sin grievously against the plain teaching of that Christ in the hope of whose name they profess to live and die.

The efficient workers among the poor are almost always drawn from the middle class. With a few notable exceptions, "society" people's work amounts to very little. Effectual charity work and the requirements of society do not easily consort. Those who subscribe to the various charities in New York with a liberality that bears any proportion to their means, are comparatively few indeed. An examination of charity returns proves this. A certain amount of amateur fingering with the skirts of this poverty question is indulged in by those people who are called fashionable, but the needs of such work make it impossible to undertake it so. To help our brother to-day, we must both study his case and take off our coats; no one can hope to live a life of pleasure, and at the same time take any real part in this struggle. Either pleasure or poverty must come first; and if society is put first—as, naturally, it often is—then much really useful work among the poor is out of the question. Since the church alone can offer to men the meeting grounds of the future, since she alone can draw men to the understanding of their fellow men, it is time that we should hold at its true worth this society charity that lifts its voice so high in our modern Babel, and is so useless practically. This sort of work is too often the only work attempted by ordinary church members in rich congregations. But what right have we to expect efficient work from members of any church, when the whole aspect of the modern Protestant churches, in our large cities at least, is repellent to the poor man? A church must be the embodiment of an idea; its very stones and mortar, its structure, as well as its services, should embody an idea. What possible Christian idea do our churches embody, as the poor regard them? When services are not being held, the buildings are generally closed. What possible use can an artisan have for a church that rents its pews at figures ranging from $50 to $1,200 a year, perhaps reserving, in out-of-the-way places, a few uncushioned free seats? He has to make a journey to reach one of these churches, for they have steadily gone farther and farther away from the

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quarter where he lives. From the huddled, heathen, lower city he sometimes comes on Sunday with his children. Let him pass the churches and go to the park; there is no real place for him till he gets there. Even there the influence of the churches—so he believes, at least—follows him, and closes in his face the museums and galleries, for whose support he pays far more than his share. The churches have no message for him, nor will they allow him to spell out any message of good will for himself.

It is sad folly. These churches could help the poor man. They could take to him their beauty and space, their restful quiet, the rich glory of their colored glass and pictures, the inspiration and peace of their music; and more, far more than these, that message of good will to men of which all beautiful things are but the setting—that one lasting and only explanation of the meaning and purpose of toil and pain in human life which the birth, death, and resurrection of a God-man offer. But what do they do? They support a policy which keeps all these things for the few whose lives are already full of the enlarging elements which the dwellers in tenement houses utterly lack. The best churches, the strongest church organizations, have deliberately deserted the field where the strife is hottest, and have sought those rich localities where support is easy. As organizations providing Christian culture for those of the cultured who wish to attend and support them, they answer their purpose well enough; but as embodying, in any real sense, the comprehensive and aggressive mission of a living Christian body in these times and conditions of ours, they are hollow mockeries and utter failures. The feeble line of missions that they support are as incapable of making any lasting impression on the huddled, heathen, sometimes hungry, masses of working folk, who are fast becoming more than indifferent to all religion, as a skirmish line would have been incapable of carrying and holding Missionary Ridge or Plevna. The poor forget the church, because the church in our great cities has first forgotten the poor; she has dissociated herself from them. The very name "missionary," applied to a man or a woman, be he or she never so capable, is a serious barrier to confidence and to any free interchange of sympathy. The church's methods and machinery are antiquated; her language

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needs constant explanation. And more than this, some of her ablest teachers and leaders seem determined to fasten on her a policy of inaction. They believe in the leathern bottle of fifteen hundred years ago; it held good wine then, *ergo* there is nothing like it to-day. They cannot be induced to provide new leather for new wine, and they regard the rending of the old leather and the loss of its contents with something like the complacency of utter ignorance. The rector of the wealthiest Protestant church in the world, in a letter to the New York "Herald" of November 30, 1890, over his own signature, says:

> "The church was not founded with the direct view to moral culture, class elevation, etc. I have no confidence in the judgment or wisdom of those who tell us that the church must try to reach the masses, purify politics, elevate the laboring classes."

No wonder, when leaders take such a position, that the masses turn from them with bitter impatience, and often turn, too, from the church in whose name they so mistakenly speak.

When it is proposed to collect and expend money for a church edifice that shall embody American Christianity more fitly than any other, the collective wisdom of the church in New York proposes to place it—the new cathedral—where it will be practically inaccessible to the very poor. Surely it does not need any great penetration to see that two or three large free churches, built on cleared spaces, on east and west down-town sites, always open to the public, provided with real preachers, and having each a large kindergarten, a swimming bath, and a gymnasium, as important parts of its outfit—that these, adequately supported and endowed, would be a recognition of our past and present ignorance and neglect, and a step, nay, a stride, in the right direction. Near these churches a band of unmarried clergy and picked lay workers should live, undertaking duty for a stated time, perhaps; and under their control all these accessories of civilization could be placed. This plan would cost money; but it would do more to right the church in the eyes of the working people, it would more immediately affect the life of the metropolis, it would do more to sweeten and purify the bitter springs at which the poor must drink, than the building of ten cathedrals would ever do. To right the church in the minds of the poor is the

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duty of the hour. It is the best work that can be done at present for the development and upbuilding, among our city population, of a life which, by virtue of its true virility, shall cast off poverty's worst ills as a healthy body throws off disease.

I have been asked to write on work among the poor. I have dwelt on the churchly and Christian side of it, because I am convinced that the work to be done to-day can be successfully done only by are converted church. Soon or late the state will be obliged to institute great changes. Private philanthropy, corporate charity, can never altogether remove evils that one day we shall unite in regarding as intolerable—evils that dwarf and cripple the youth of our country. But to-day much can be done. The duty of the hour is to bring man nearer to man, to bridge a fast-widening and fast-deepening gulf that divides the rich from the poor. Our statute books are encumbered with the records of inoperative legislation, because such enactments do not rest on moral convictions among the bulk of our people. Legislation will amount to little till it shall be the practical voicing of an aroused public conscience. To awaken and to educate man's sense of duty to his fellow, is the work intrusted to the church of God. To do this work she must anticipate legislation, not merely follow in its track. She alone can reveal to men that broad and everlasting foundation on which all true progress and prosperity can be based—an unquenchable belief and hope in a Father infinitely wise, loving, and just, and an unalterable love, respect, and pity for a humanity capable at last of understanding and enjoying him forever. To reply to the cry of the poor to-day with money only, is to offer a hungry man a stone. The poverty around us —the poverty we must minister to—dwarfs the man, for the worst ache it knows is the ache of a wronged and hungry heart.

W. S. Rainsford.

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THE FATE OF THE ELECTION BILL.

In December, 1889, the Republican Party succeeded to the legislative power for the first time in sixteen years. During all that period the men entitled to speak for it, if anybody could speak for it, had insisted that it represented the true and lawful majority of the American people. They had held that the House of Representatives, as constituted for fourteen years of that time, and that the presidency itself, when occupied by Mr. Cleveland, represented nothing but usurpation, by which, in large districts of the country, the will of the people had been defeated. The party attributed more or less importance to other questions; there were resolutions in State and national platforms on other subjects, in regard to some of which differences of opinion were known and tolerated; but no difference of opinion was ever heard of among Republicans as to the duty of providing a remedy for this great wrong. The Chicago convention of 1888 placed the subject foremost in its platform, devoting to it three resolutions, as follows:

"We reaffirm our unswerving devotion to the national Constitution and to the indissoluble union of the States, to the autonomy reserved to the States under the Constitution, to the personal rights and liberties of citizens in all the States and Territories in the Union, and especially to the supreme and sovereign right of every lawful citizen, rich or poor, native or foreign-born, white or black, to cast one free ballot in public elections and to have that ballot duly counted.

"We hold a free and honest public ballot and just and equal representation of all the people to be the foundations of our republican government, and demand effective legislation to secure integrity and purity of elections, which are the fountains of all public authority.

"We charge that the present administration and the Democratic majority in Congress owe their existence to the suppression of the ballot by a criminal nullification of the Constitution and the laws of the United States."

Republicans might be men who favored a high tariff or a low tariff, free raw material or a duty on everything that can profitably be produced here, silver currency or bimetallism; but these

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resolutions were accepted everywhere as constituting the very definition of Republicanism. It is believed that a Republican constituency could scarcely have been found in the country within the past fifteen years which would have elected to any considerable political office, State or national, any man who denied them.

The writer, in presiding over the convention which nominated President Garfield at Chicago in 1880, charged that the Democratic Party had done or had tried to do nothing in this country for sixteen years except to break down the legal safeguards which make free elections possible.

"United in nothing else, proposing no other measure of policy, it wages its warfare upon the safeguards which the nation has thrown around the purity of its elections. It can see nothing else of evil, except that a freeman should cast a free vote under the protection of the national authority."

And, after reciting some of the great achievements of the Republican Party which have affected the business interests of the country, he added:

"But not for these things alone does the Republican Party challenge your respect or demand your confidence. National wealth may exist, commerce may increase, in a nation whose people are degraded and enslaved. The keynote of every Republican platform, the principle of every Republican union, is found in its respect for the dignity of the individual man. Until that shall become the pervading principle of the Republic, from Canada to the Gulf, from the Atlantic to the Pacific, our mission will not be ended. The Republic lives, the Republican Party lives, but for this: that every man within our borders may dwell secure in a happy home, may cast and have counted his equal vote, and may send his child at the public charge to a free school. Until these things shall come to pass, the mission of our party will not be accomplished, nor will its conflict with its ancient adversary be ended."

It will not be doubted that "the effective legislation" which the Chicago platform of 1888 promised to the country, "to secure integrity and purity of elections, which are the fountains of all public authority," meant legislation by Congress. The convention was announcing the purpose of a national party in regard to national elections. It had no expectation that it could, in the campaign for which it was defining the issues, dislodge its antagonist from power in the States where the abuse chiefly existed. After the election of 1888, when it became known that the Re-

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publicans had elected the president and a majority in each house of Congress, many bills, intended to secure honest elections of members of the House, were introduced in the Senate during the short session beginning December, 1888, and were referred to the committee on privileges and elections. The chairman of that committee brought to Washington, in December, 1890, a carefully-prepared bill based on one introduced by Mr. Sherman, providing for holding under national authority separate registrations and elections for members of Congress in all the States; but it was found, on consultation with every Republican senator except one, that a large majority were averse to an arrangement which would double the cost of elections throughout the country, and which, in States where personal registration every year is required, would demand from every citizen his presence at the place of polling or registration four times every alternate year. Accordingly, another bill was drawn, which provided for national officers, of both parties, who should be present at the registration and election of members of Congress, and at the count of the vote, and who should know and report everything that should happen, so that all facts affecting the honesty of the election and the return might be before the House of Representatives. To this were added some sections providing for the punishment of bribery, fraud, and misconduct of election officers.

The bill was ready to be reported early in February, 1890. But in the mean time the House of Representatives had appointed a committee charged with a similar duty. Members of that committee thought, with much reason, that a measure which concerned the election of the House should originate in that body. Accordingly, the Senate committee held back its bill, and awaited the action of the House, which, on July 15, 1890, sent a bill to the Senate. The bill passed by the House dealt not only with the matter of elections, but also with the selection of juries and some important kindred subjects. The Senate committee struck out everything that did not bear directly on elections, mitigated the severity of the penalties, and reduced very considerably the bulk of the bill. The measure was reported in a new draft by way of substitute, and remained before the Senate until the beginning of the present session, when it was taken up for

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action. It was a very simple measure, and merely extended the law which, with the approbation of both parties, had been in force in cities of more than 20,000 inhabitants since 1870. This law had received the commendation of such leading Democrats as the late Mr. Cox, Secretary Whitney, the four Democratic congressmen who represented Brooklyn, and General Slocum, then representative at large from the State of New York; and it had been put in force on the application of Democrats quite as often as on that of Republicans. The bill modified it by providing that, in case of a dispute concerning an election certificate, the circuit courts of the United States should award a certificate entitling the member to be placed on the clerk's roll, and to hold the seat until the House itself should act upon the case. This provision is copied from an English law enacted in 1868, which, though viewed with great apprehension by the English judges, as likely to bring them into politics, has been carried out there to the entire public satisfaction.

The bill reported provided that, on the application of one hundred voters, the registration and election, though left entirely in the hands of the State officers, should be witnessed by supervisors belonging to the two political parties, who should preserve the facts for the information of the House, or, in case the intervention of the court should be sought by either candidate, for the information of the judge. This, and a few provisions against bribery, frauds by election officers, and abuse of power by the officers of the United States, made up the whole of this much-abused bill. It did not provide for the use of any force whatever, still less for the calling out of troops. It did not interfere in the least with the State election officers in the performance of their duties, or remove the conduct of elections from the States. It did not apply to the South more than to the North. It did not in the least affect State or local elections. It gave no exclusive control to either political party. While it originally provided that the supervisors should consist of three persons, only two of whom should be of the same political party, that feature was changed, after the bill reached the Senate, by a provision that there should be at each polling place but two supervisors, who should be of different political parties.

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It is impossible to think that any man who understood this bill could oppose it unless he desired the continuance of fraud or of violence in the election of representatives to Congress. During the progress of the bill several amendments were made, all intended to remove the doubts or the objections of its opponents. An amendment had been carefully prepared, on consultation with Senator Allison, to provide against excessive fees, and to establish a system by which the accounting officers of the treasury should oversee the supervisors; and notice of this amendment had been given. When it was suggested that the phraseology of the bill might be construed to make the chief supervisor a life officer, or to limit the power of the judge and to increase that of the chief supervisor in the appointment of subordinates, amendments were at once consented to for the purpose of removing all such doubts. A bill of the same length or of the same importance can scarcely be found to which, however carefully it may have been prepared, more amendments have not been found necessary in its passage through the Senate. The great appropriation bills, which are prepared by experienced committees, and which go over the same ground year after year, frequently require hundreds of amendments in the course of their passage. No Republican who refused his support to the bill suggested any other measure, or scheme, or plan, or offered any amendment of importance that was not instantly accepted.

The bill was reported to the Senate on August 7, 1890. Meantime the tariff bill, which had been made by Mr. Cleveland, so far as he could make it, the sole issue in the late presidential election, had been matured and reported. It affected all the business interests of the country, and they were in a state of uncertainty and alarm. Mr. Quay, of Pennsylvania, proposed a resolution to the effect that certain enumerated measures, not including the election bill, should be considered at that session, and that all others should be postponed. There were Republicans enough in favor of the resolution to give it a majority, if it had been brought to a vote. This would have postponed the election bill without any assurance of its consideration in the short session. An agreement was therefore made, at a conference of Republicans, to the following effect:

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"We will vote: 1. To take up for consideration on the first day of the next session the federal election bill, and to keep it before the Senate, to the exclusion of other legislative business, until it shall be disposed of by a vote. 2. To make such provision as to the time and manner of taking the vote as shall be decided, by a majority of the Republican senators, to be necessary in order to secure such vote, either by a general rule like that proposed by Mr. Hoar, and now pending before the committee on rules, or by special rule of the same purport, applicable only to the election bill."

This was signed by a majority of the entire Senate, and entitled the friends of the election bill to the assurance that it would be brought to a vote at the short session.

It will, I think, be clear from the foregoing narrative that the Republican Party had promised to do its best to secure honest elections, by the exercise of the national legislative authority, and that the purpose to keep that promise is the one essential thing that constitutes Republicanism. To that promise the President and the great body of the Republicans in the House and in the Senate have been true. The mission of the Republican Party will not be accomplished until that promise shall have been kept. At present, the Fifteenth Amendment, and so much of the Fourteenth as relates to suffrage, are absolutely nullified. The condition of things in this country to-day, so far as relates to the election of representatives and presidential electors, is as if those two amendments did not exist. Let us see where the responsibility for this condition of things belongs, and what has been, and is likely to be, its effect upon the great interests of the country. I do not speak of the gentlemen, elected by Republican constituencies, who have separated from their brethren. It is no part of my duty to discuss the action of my associates in the Senate, except to answer their reasons in debate if I can. I am speaking now only of the larger influences which have made possible the overthrow of popular elections in this country, and the nullification of the Constitution itself, so far as it provides for such elections, and which have baffled any attempt to apply to these crimes a simple, lawful, constitutional remedy.

If the body of northern business men, the body of self-styled "reformers," the body of educated and wealthy men, who are indifferent to their political obligations, had acted for the past fifteen years with the Republican Party, election practices which

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have made so many States of the South solid against the wishes of a majority of their own people, would have been unavailing. I believe that the great bulk of the business men of the North are, upon this question, sound to the core. I believe that they prefer liberty and honesty to ease and wealth. I believe that the great body of reformers and lovers of pure government in this land are to be found in the ranks of the Republican Party. But the overthrow of constitutional government in this country is due to the defection of the classes to which I have referred. Those classes will be the first to experience the bitter penalty, and it will fall on them most heavily. They have sent representatives to Washington from northern States to vote for a speaker in full sympathy with these practices, and for an organization of the House which will render the suppression of them impossible; to vote, in all disputed election cases, to assign to southern contestants the prizes in these Isthmian games of violence and fraud, and to vote against every attempt to secure free and fair elections by legislative authority or by the authority of the courts. It has frequently been demonstrated that, by reason of this usurpation, a number of representatives, varying from 39 to about 60, sit in the House, in places which, without such usurpation, would be filled by Republicans. In addition to this, many presidential electors and many senators owe their appointments to the same practices, although, in the case of presidential electors and senators, a remedy by national power is more difficult. The votes of these men have always been thrown against the interests and opinions of the business men and of the so-called reformers of the North, who have been in such large degree their political accomplices.

Take two recent examples: There is no pending measure which the business men of the country think likely to be more injurious to our prosperity than the proposition for the free coinage of silver. They think that, if the proposition should be adopted, the measure of our circulating medium, the measure and standard of all prices and contracts, would be in a state of constant fluctuation. They believe that, in such a case, every man who is hereafter to receive a dollar, whether in payment of a debt, in payment of a savings-bank deposit, in payment of a

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pension, or in payment of wages, would receive a dollar whose value cannot be calculated beforehand, and about which he knows only that its value will be much less than that which he is now entitled to receive. They believe that the relations of this country to all the commercial nations of the earth would be seriously affected for the worse by such a measure. They believe that it would introduce a new period of speculation and of financial dishonesty. Yet, while they affirm this so vehemently, so conscientiously, so truly, it is due solely to them that the country is in any danger whatever from this source. On the recent test vote, where the attempt to put a provision for the free coinage of silver upon an appropriation bill was defeated by a majority of seven—the vote being 134 to 127—only 11 Republicans voted in favor of the provision, and but seven Democrats voted against it. Every Democratic vote in the House from States south of Mason and Dixon's line was for this measure. And yet committees visit Washington to utter earnest protests, almost every man of whom has given all his influence toward the election of these representatives and toward the overthrow of every practical measure which would have prevented 39 seats from being wrongfully filled by the advocates of free silver coinage. They tell us that the proposition to make a silver dollar of the present weight equal in value and in debt-paying power to a gold dollar of the present weight, is debasing the currency; that such a dollar is only another form of the old clipped dollar, and of the old clipped sovereign which Macaulay said wrought more harm to the people of England than all the tyranny of the Stuarts. And yet to-day the danger of the debased dollar comes solely from the political action of these gentlemen who profess to be so earnest in their opposition to it. Do they think, when they have introduced in the United States a clipped Constitution, a clipped manhood, a clipped suffrage, and a debased franchise, that clipped coinage and debased currency will not follow? Do they think, when every American is himself "a clipped sovereign," that he can hope very long to carry an honest dollar in his pocket, if the men who debased him are under any temptation to debase that dollar? In the Senate every Democratic vote but three was given for this proposition

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to lower the standard of the currency, while every Republican vote but 16 was given against it. Even the senators from the six newly-admitted States—Washington, Idaho, Wyoming, Montana, North Dakota, and South Dakota—in spite of the excitement of the people on that subject, in spite of the fancied interests of their mines, were evenly divided by their votes, or by their pairs, on this question. Every senator from the States the honesty of whose elections is in question, voted for the measure which their northern and eastern allies and accomplices profess so much to detest.

The business interests of the country have long earnestly demanded the passage of a bankruptcy bill. The framers of the Constitution intended that the passage of such a measure should be imperative upon Congress. If it could pass, not only would equality and honesty in the division of the estates of debtors among their creditors be assured, not only would immediate relief be given to the hundreds of thousands of debtors who are now carrying with them the chain of their indebtedness, and who, unless the passage of the pending measure shall be effected, will carry it with them to their graves, but the interest upon money throughout the South and West, where the best securities now bear eight, ten, or twelve per cent., would be reduced nearly to the rates that prevail in New York and New England. When this measure was last before the Senate, every Democratic member of that body voted to strike out "the involuntary clause," and thereby sealed the fate of the bill. When the bill now on the Senate calendar passed the House of Representatives at the last session, there were only 12 southern votes for the measure, seven of which were cast by Republicans, while there were 38 Democratic southern votes against it.

I see that a gentleman for whom I entertain great personal regard, has written to Mr. Cleveland that the southern Democrats were obliged to vote for the silver bill because of their apprehension of the passage of the election bill. He seems to think that the excuse, if not reasonable, is at least natural. I could not help wondering in what corner of Russia or Turkey he had been born, under what slave whip he had been brought up, what doctrine of submission to despotism he had learned, that he could

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write such a letter without accompanying it with a single expression of manly indignation.

While the suffrage is violated or debauched, no interest of the country is safe. If injustice lies at the foundation of our political power, justice will not long be found anywhere. The pestilence which has its origin in the hovel, fills the palace also with mourning. Where the poor man is deprived of his vote, the wealth of the rich man loses its value. The peaceful remedy which has just been defeated would have saved many a disaster that is to fall most heavily on the men upon whose blindness, or indifference, or cowardice, rests the blame of this defeat. The question will not down. Nothing is settled that is not right. It is to be hoped that when, in 1892, a new appeal shall be made to the conscience and understanding of the American people, they will put forth strength enough to throw off the nightmare which oppresses them, and that it will still be in their power to vindicate in peaceful ways the rights which otherwise will surely be asserted through convulsion and in blood.

GEORGE F. HOAR.

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A DEFECTIVE CENSUS.

THE Constitution requires Congress to provide for a decennial enumeration of the people of the United States. It was not intended thus to make a vain show of our national strength, but solely to secure to the people of each State their proportionate representation as stipulated in the organic law. When the population has been correctly ascertained and returned, it is the duty of Congress to apportion representatives among the several States according to the numbers so returned. If the return does not include "the whole number of persons in each State, excluding Indians not taxed," the right of representation, to the extent of the omission, is confiscated and lost. That right is the right preservative of all rights, and unless it is secured, every other is beyond the protecting power of the citizen. Under a free government no right should be more jealously guarded, none should be more firmly supported, and encroachment upon none should be more universally condemned. If any considerable number of persons is omitted from the return, and if that number is sufficiently large to be entitled to one representative, the wrong should be exposed and the proper correction should be made. Where the false return affects only a few small localities, the injury is comparatively insignificant; but when, either by negligence or by design, it extends so far as to decrease the number of the majority party and to increase the number of the minority party until they seem to have exchanged positions, then the wrong transfers the governing power from the majority to the minority and affects the entire people.

Since the advent to power of the present administration, a suspicion has been entertained by many that the eleventh census would prove to be a partisan raid on the right of representation. The official report of the census bureau, now made public, has not entirely removed all cause for that suspicion. The announcement that our population is only 62,662,250 was a genuine

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surprise, not only to those who looked for the dark side of the picture, but also to those whose faith in the administration and its census bureau had never for a moment wavered. The census of 1880 gave us 50,155,783. The present returns give us an increase of 12,466,467, which is at the rate of 24.86 per cent. That this number is not even approximately correct, may be seen by comparing the increase in this decade with the gains in others which have preceded it. It will not satisfy the candid mind to say that this is the actual enumeration, and that it cannot be impeached by comparison with those of other decades or with the estimates of experts. Any alleged fact that is without the pale of probability, stands impeached at the very threshold of the inquiry, and must be verified by competent evidence. If the census returns had stated that a million of our people exceed twenty feet in height, or that one half of them have red eyes and the other half blue hair, no one would have believed the report. If they had shown that our population had decreased during the decade, that statement would have been equally incredible. None of these reports would have been credited, because all of them would have been beyond the boundaries of probability. Any statement reported to be true, in order to receive credence must be in harmony with things that we know to be true.

It is improbable that our population does not exceed the number reported. The report is out of harmony with those of every other decade of our history, except that of the civil war. From 1810 to 1860 our decennial increase ranged between 36.38 and 35.58 per cent. At no period outside the war period has our increase been so low as 24.86 per cent. Nothing short of war, pestilence, or famine could account for such an extraordinary fall in the rate of increase. Mr. Porter says that the general law governing the increase of population is that "it goes on at a constantly-diminishing rate." That is true generally, but not universally. From 1790 to 1800 the percentage was 35.10; in the next decade it was 36.38. Here was an increasing rate, not a diminishing one. From 1810 to 1820 it was 33.07 per cent. Here was a diminishing rate, but it did not continue to fall, for from 1820 to 1830 it was 33.55 per cent. From 1830 to 1840 it was 32.67 per cent., but from 1840 to 1850 it

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was 35.87 per cent. These fluctuations were caused by the introduction of the factor of immigration. In decades where the immigration is larger, the percentage of increase is larger, and where it is smaller, the reverse is true. If additions and subtractions by immigration, wars, pestilences, and famines are left out of the computation, the rate of increase of population is found to be constantly diminishing; but the diminution is gradual and steady; it is not volcanic or spasmodic in its movements, as the report of the eleventh census would show it to be.

In order to get nearer to the law that governs the increase of population, we should eliminate immigration from our estimates. Its presence tends only to obscure the problem and to make it more difficult of solution. In the decade from 1840 to 1850, when we had 35.87 per cent. increase, we had more than a million of immigrants in excess of those of the preceding decades, and from 1850 to 1860, when we had 35.58 per cent. increase, we again had a million more immigrants than in the decade immediately preceding. But from 1860 to 1870, when our increase was at the rate of 22.63 per cent., we had a decrease of immigration as well as a tremendous civil war. From 1870 to 1880, when our increase was at the rate of 30.08 per cent., the lowest we had ever had outside of the war period, our immigration exceeded that of the preceding decade by only 420,000. Our immigration from 1880 to 1890 was 5,246,613, without including accessions from Mexico, and from the British possessions since 1885, which the bureau of statistics estimates, from Canadian records, at 540,000, making the total of immigrants for the decade 5,786,613. This number is more than twice as large as that of any former decade, and yet the percentage of increase falls from 30.08 to 24.86! Where does this enormous shrinkage come from? Certainly not from wars, pestilences, and famines, for we have not been visited by any of these scourges during the last ten years. By subtracting from the total population the number of immigrants received in each decade, we can ascertain the rate of natural increase in each. From 1820 to the present we have official reports of the numbers of immigrants, and subtracting these from the totals in each decade, we find that the rates of increase have been as follows:

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From 1820 to 1830,		31.65	per cent.
" 1830 " 1840,		28.01	"
" 1840 " 1850,		25.83	"
" 1850 " 1860,		24.45	"
" 1860 " 1870,		15.38	"
" 1870 " 1880,		22.78	"
" 1880 " 1890,		13.32	"

If we do not subtract the estimated immigration from Canada, the last rate becomes 14.39 per cent.

Here we see Mr. Porter's law of the diminishing ratio, and observe how closely the successive falls approach one another. In the decade from 1860 to 1870, we see an abnormal depression from 24.45 per cent. to 15.38 per cent. It ended before the next decade began, and the rate of increase took its normal place in line at 22.78. From 1880 to 1890 it should have been close to 20 per cent.; but the census report tells us that it was 13.32—lower than during the war decade. An increase of 20 per cent. would have brought us in the neighborhood of the estimates of the experts of the Treasury Department. Professor Elliot, actuary of the Treasury Department, estimated the population for 1888 at 62,728,000, and that for 1889 at 64,554,000. He did not carry forward his calculations to 1890; but if he had done so, using the same ratio of increase, he would have estimated our population in 1890 at more than 66,200,000. Mr. McCoy, his successor, estimated our population for 1888 at 62,621,000, for 1889 at 64,403,000, and for 1890 at 66,236,000. Both of them adopted the actual returns made in 1880 as the basis of their estimates, and, judging by Mr. Porter's report, both aimed wide of the mark. To impair the value of Professor Elliot's estimates, it is asserted that he put our population for 1880 at 50,858,000, while the actual count showed it to be 50,155,000. That is true. He made this estimate in 1874, and doubtless took into account the large influx of population that had been for five years pouring upon our shores. Unhappily for his prediction, it began to fall off, and continued to fall till 1879, when it began to revive again. During the last half of the decade the annual decrease was more than 100,000 below the average of the five preceding years. When proper allowance has been made

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for this, his figures for 1880 will be found to be in the neighborhood of those obtained by the enumerators.

The actual numbers returned for the years 1870, 1880, and 1890 show that 38,558,371 people made a larger natural increase from 1870 to 1880, than 50,155,783 people did from 1880 to 1890. Deducting the immigrants from the figures of both periods, the increase in 1870–80 is found to have been 8,785,121, and that in 1880–90 to have been 7,219,854. Can it be seriously contended that 38,000,000 people increased 1,000,000 more than 50,000,000 of the same people did? The census report declares that startling fact, but the Superintendent asks the people to believe only one half of it. He sees the palpable absurdity of such a statement, and to escape it plunges into a worse one. He assails the census of 1870, and says that it should have shown 39,818,449 people instead of 38,558,371, and that the increase in the previous decade should have been 26.6 per cent. instead of 22.63. To make his logic fit the situation, he adds 1,260,078 to the returns of 1870. This addition makes the percentage of increase from 1870 to 1880 25.9 instead of 30.08 per cent. Is it possible that Mr. Porter can be serious when he says that our population increased during the war decade faster than in the peace decade following? Does he ignore the fact that immigration during that decade was more than 300,000 below that of the preceding decade, and more than 500,000 below that of the succeeding decade? Does he ignore the facts that more than 500,000 people perished from causes arising out of the war, that from 2,000,000 to 2,500,000 men were in the field, and that a vast number of these were husbands who were separated from their families for a great part of that time? He ignores the war and all its destructive effects on population, and contends that, during all that time, when the sexes were separated to so great an extent, there were more births than in the next decade —a period of profound peace.

Thus the Superintendent has been placed by his enumerators in an unhappy situation. To escape the conclusion that their figures have forced upon him—that 38,000,000 people have increased faster than 50,000,000—he flies for refuge to the still more absurd position that the increase of our population was

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greater during a time when the sexes were separated than when they were united. Taking the corrected figures of 1870, as made by the Superintendent, and leaving out immigration, the rate of increase from 1860 to 1870 is 19.38 per cent. Here is still a spasmodic fall from 24.45 to 19.38 per cent., though the diminution of the rate was less than two per cent. in the preceding decade. The rate of increase from 1870 to 1880 is reduced by Mr. Porter's corrections to 18.89 per cent., which is as much too small as the other is too large. From 18.89 in 1880 Mr. Porter plunges to 13.32 in 1890. Thus the diminution of the rate has changed suddenly from one half of one per cent. to five and a half per cent. It is plain that his corrected statement does not extricate the Superintendent from the position in which he is placed by his enumerators. It may be true that the census in South Carolina was defective in 1870, and perhaps it may have been so to a small extent in some of the other southern States. The non-enumerated in all of them were not more than half a million. Now if we take the census of 1870, and add 500,000 for those omitted and 2,000,000 for the loss of life and the retardation of increase caused by the war, we shall have the following rates of increase, immigrants being omitted:

From 1820 to 1830,.....	31.65
" 1830 " 1840,.....	28.01
" 1840 " 1850,.....	25.83
" 1850 " 1860,.....	24.45
" 1860 " 1870,.....	23.33
" 1870 " 1880,.....	21.50
" 1880 " 1890,.....	13.32

Thus it is evident that whether we take Mr. Porter's figures without any allowance for the war, or with the effects of the war added, they by no means account for the apparent loss of population, which has been, as shown by him, greater during the decade just ended than it was during the decade of hospitals, prison pens, and battlefields. The percentage of 1890, to be in harmony with the whole line of preceding decades, except that of the war, should have been nearly 20, which would have given us a total population of 65,000,000 or 66,000,000. It is said that the very low rate of increase, as shown by the census of

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1870, in Virginia, North and South Carolina, Georgia, Alabama, Mississippi, Louisiana, Kentucky, and Tennessee, proves that their populations had not been correctly taken. Does not that record point rather to the terrible results of war? For nearly half that decade almost all the males of the white race who were able to bear arms were in the field, and thousands of them perished. Did it ever occur to Mr. Porter that vast numbers of them fled with their slaves before the advancing armies of the United States and took refuge in Florida and Texas? He did not embrace these two States among those whose populations he says were not enumerated correctly. Texas showed in 1870 an increase of 35.48 per cent., and Florida one of 33.70. It is strange that while their sister States of the South were neglected by the enumerators, they fared so well. Each showed a greater increase than any one of the New England States, New York, New Jersey, Pennsylvania, Delaware, Maryland, Ohio, or Indiana, and was about 13 per cent. above the average of all the other States. Mr. Porter thinks that the low rates of increase reported for Kentucky and Tennessee in 1870 prove that they were neglected in the census of that year. But, though they had 500,000 men in the field during four years of the preceding decade, their population increased at the rate of 14.30 per cent., while during 1880–90, when all their citizens were at home, it increased, according to the recent census, at the rate of only 13.65 per cent. If an increase of 14.30 per cent. in time of war is so low as to justify the conclusion that they were neglected then, what conclusion is to be drawn from the lower rate of 13.65 in a time of profound peace and undisturbed prosperity? If they went without proper representation in Congress then, what is the outlook now? There is no room to doubt that the census was substantially correct then, and that their increase of 23.70 per cent. in 1870–80 was the natural result of peace and of the return of soldiers to their homes. But who can account for their fearful leap backward in 1890? The small increase of the colored population in the South was attributable to the same cause that hindered the growth of the white population. Many thousands of them were enlisted in the armies of the United States, and many thousands more were attached to the armies in different capacities. The

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same cause that reduced the rate of increase among the whites reduced it among the blacks. It is possible that South Carolina and some others of the southern States may have been underestimated in 1870, but they have fared worse under the census of 1890. It is strange that a gentleman of Mr. Porter's intelligence should wholly ignore the war as a factor in reducing the rate of increase of population of "the fire-girt circle." He seems to be oblivious of the fact that the country of which he speaks was the theater for four years of the most gigantic war that has ever occurred in the world. He is mistaken in his assumptions; it was not the census of 1870, but the one of 1890, that caused the discrepancy.

The statistics of scholastic population taken in the different States of the Union show that the census of 1890 is not correct. The children of school age are enumerated by officers appointed under the authority of the State governments. Their number is annually reported at Washington, and from the rate of annual increase of those within given ages the total population of each State can be closely calculated. I am informed by the Commissioner of Education that there were in Texas in 1880, 311,567 children between the ages of eight and sixteen years; that the children between those ages increased between 1880 and 1890 at the rate of 86.4 per cent.; and that the population of the State in 1890, if the whole increased in the same ratio, should have been 2,966,000. The census gives us 2,235,523. Here is a loss of about 700,000. Why should not the whole population have increased at something like the same rate? That four fifths of the people increased at about the same rate that one fifth did, can hardly admit of a doubt, and one or the other of these returns must be incorrect. If all between the ages of eight and sixteen years have increased 86.4 per cent., the rate for the whole State must have been more than 40.44. These two returns are too far apart. One or the other is wrong. Either the school census has been padded, or the federal census has failed properly to enumerate the people. To suppose the first to be true, is to suppose the school enumerators guilty of fraud. But there could be no motive for perpetrating such a fraud. There was no money to be made by a fraudulent school census.

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There was no party advantage to be gained. We must suppose that the children were in existence and that they were properly returned. If this is true, the federal enumeration is wrong. The result may have been produced by the neglect or incompetency of the enumerators or of others charged with the work. I state facts, and leave others to draw conclusions from them as they may. But whatever those conclusions may be, the State of Texas is deprived, by the incorrect returns, of at least three representatives in Congress and three votes in the electoral college. Estimating the total population by the same ratio of increase of children within given ages, Alabama loses 240,000, Tennessee and North Carolina 170,000 each, and Virginia, Kentucky, and Louisiana 100,000 each. In the States of the North and West the federal census exceeds the school census by about 800,000, while in those of the South the school census exceeds the federal census by 1,500,000. If we assume that in each State and Territory the highest number is approximately the true number, which I believe to be the case, the whole population of the United States is in the neighborhood of 65,000,000.

ROGER Q. MILLS.

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WILL MORALITY SURVIVE RELIGION?

We learn that the year's earnings of a great telegraph company were sensibly increased by the Birchall affair. Thus was confirmed the saying that nothing else gives a community so much pleasure as a murder, except a case of clerical *crim. con.* But apart from the popular sensation of the crime and the trial, an ethical interest attaches to the character of this man, who, when he was not twenty-four, mounted the scaffold for a singularly cold-blooded and deliberate murder. Birchall was a perfect specimen of the moral, as well as of the religious, agnostic. As he was the son of a clergyman and had been well brought up, he must have been thoroughly enlightened, and cannot have been led into crime by anything like the brutal ignorance of moral law which is often the heritage of the gutter child. Nor does it seem that evil passion of any kind was overpoweringly strong in him. The attempts of the enemies of capital punishment to make out a case of moral insanity were in this case more faint than usual. It even appears that there was an amiable side to his character. His college companions liked him. He seems to have been a loving husband, and there was something touching and almost heroic in the effort which he successfully made, while he was awaiting execution, to master the fear of death and to write his autobiography for the benefit of his wife. The autobiography, it is true, is nothing more than the vulgar record of a fast undergraduate's life at an inferior college; but this does not detract from the nerve shown in writing it, and in illustrating it with comic sketches, beneath the shadow of the gallows. He only happened to have occasion for his friend's money. It is possible that if Birchall, instead of being sent to college—where a youth of his stamp was sure to be idle, and, being idle, to become dissipated—had been set to regular work in an office under a strong chief, he might have gone decently through life, though he would have been a very

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selfish man. But he was a thorough-going agnostic in morals as well as in religion. Evidently he felt not a twinge of remorse for what he had done. No doubt he cursed his own carelessness in having, when he was destroying all the proofs of identity on the corpse, overlooked the cigar case, the name written on which gave the fatal clew; but the recollection of having killed a confiding friend for his money evidently gave him no more concern than as if he had slaughtered a bear for its skin. Bred a gentleman, he admirably preserved his dignity and impassiveness of manner when standing at bay against his pursuers, and he showed the same qualities for the two months during which a whole community was staring at him through the bars of his cage, when the least sign of weakness would have been at once proclaimed. When he was sentenced, he remarked, with a philosophy which appears to have been genuine, that life is short for all, and that there is not much difference between a term of a few months and one of a few years. He might have added that he would make his exit from life more nearly without pain than ninety-nine men out of a hundred.

We had a Birchall of a coarser type in England thirty-five years ago, in the person of William Palmer, the Rugeley murderer. This man was a country doctor and on the turf. He was a man of ability, popular and influential among his neighbors, as appeared when public justice began to draw its toils around him. But when he was unlucky on the turf, he was in the habit of providing for his pecuniary exigencies by the practice of slow poisoning, in which he was an adept. There was reason to believe that his own mother had been one of the subjects of his skill. At last he was compelled by untoward circumstances to hasten the process in the case of a friend, and the result was a post-mortem examination, followed by detection and the gallows. It did not appear that he was a male Brinvilliers, taking delight in poisoning, or that he was at all cruel in disposition, or even ill-natured. He seemed, on the contrary, to have been kind enough in the general relations of life. He poisoned his relatives and friends, after insuring their lives, only when it was rendered unavoidable by his financial obligations. Like Birchall, he was evidently a perfect moral agnostic. He behaved at his

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trial as if he had been watching a game of chess, showed not the slightest sign of remorse, and met death with perfect apathy, if not with Birchall's genteel composure.

As moral agnostics, these men were low specimens of a character of which the great Napoleon was the highest. Napoleon was not a cruel or an ill-natured man. He never displayed anything like the malignity of Eccelino, Bernabos Visconti, or Ivan the Terrible. There was in him a touch of Quilp, it is true, as he showed by kicking Volney in the stomach, by trampling on the feelings of Talleyrand, by persecuting Madame de Staël, and perhaps also by executing Palm. But as a rule he was rather good-natured. He was liberal, and constant in his favor to those who served him. He was capable, if not of friendship, at least of strong partiality. He could turn back to say a kind word to a groom whom he had struck in a passion. He commanded that the general who had lost the battle of Salamanca should not be questioned till his wound should be healed. To Josephine he seems to have been kind, though, when policy gave the word, he had no compunction in casting off a loving wife, the founder of his fortunes, and wondered that she should make a fuss about the matter. He even showed sensibility, and spoke with pain of his having once, to amuse a courtesan, ordered a useless engagement in which a number of soldiers lost their lives. But he was a thorough moral agnostic. Conscience had no seat in his breast. He avowed that he would let no scruples stand in his way. He treated moral law as necessary to his government, but considered himself as a person above its domain. It is evident that he never stuck for a moment at any crime or atrocity which could serve his purpose. When his Turkish prisoners were in his way, he did not hesitate to have them, to the number of several thousand, led out on the sands and butchered. If he did not disencumber himself of his sick by poison, he avowed that he would have had no scruple in so doing. It is scarcely possible to doubt that he murdered Pichegru, while he certainly murdered the Duc d'Enghien, without, we may be sure, a touch of remorse in either case. The most enormous sacrifices of human life and happiness to his selfish ambition evidently never cost him a pang. He has left on record the expression of his

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contempt for a man who was affected by the horrors of a battle-field, though Marlborough, steeled as he was, had prayed after Malplaquet that he might never be in another battle. His comment on the retreat from Russia was that a good many of those who had perished were Germans, while his bulletin announced that the Emperor had never been in better health. He was simply "The Prince" of Machiavelli, that prophet of moral agnosticism. He answered to the ideal far better than Cæsar Borgia, who committed crimes of passion, which Napoleon never did. There was a *jeu d'esprit* in the form of a copy of "The Prince," supposed to have been taken in Napoleon's traveling carriage at Waterloo, with his comments. It brings out the affinity with remarkable force.

Each of the three men was manifestly an agnostic in religion. The chaplains could make nothing of Palmer or Birchall, neither of whom evidently had any belief in a God or in a hereafter. Napoleon said that he had never given a thought to religious questions, and that if he had he would not have been able to do great things. There is a story, repeated by Carlyle, of his rebuking the materialist savants by pointing to the starry heavens and asking who made all that. But this only implies his belief in a creative intelligence, not in a moral governor, if it implies anything more than that he wanted to snub the savants. He never showed his agnosticism more signally than in restoring, for a political purpose, a religion and a church in which he did not believe. He regarded with aversion not only everything spiritual but everything philosophical, and scoffed at all philosophers as idealogues, respecting nothing but positive science; so that Positivists may regard him as a precursor.

The agnosticism of Palmer may have been contracted in the dissecting room. That of Birchall may have been contracted either in English society, where there is now plenty of it, or at a university where, in the reaction after a long clerical ascendancy, extreme views of all kinds are rife. The character of Napoleon was formed by Corsica, with its barbarism and vendettas, by the atheism of the Revolution, and by the immorality, public and private, of the Directory.

Now the question which Birchall's case rather vividly pre-

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sents to us is whether there is any logical connection between the religious agnosticism of these men and their moral agnosticism. Religious agnosticism is gaining ground, not so much perhaps in America as in Europe, because America is less speculative than Europe and because free churches do not provoke skeptical criticism so much as establishments; but everywhere religious agnosticism is manifestly gaining ground. Are we to expect a corresponding growth of moral agnosticism? We shall not have a crop of Birchalls and Palmers, still less of Napoleons; but may we not have a crop of men who will regard morality as a superstition or a convention, and will do what suits their own interest? Greece, after the fall of her religion, had the moral anarchy depicted by Thucydides and ascribed by him to that fall. She had the moral agnosticism of the Sophists. Rome, after the departure of the religious faith to which Polybius, in a famous passage, ascribes her public morality, had the immorality of the Empire. On the decline of the Catholic faith in Europe, ensued the moral agnosticism of the era impersonated in Machiavelli. In each case, into the void left by religion came spiritual charlatanry and physical superstition, such as the arts of the hierophant of Isis, the soothsayer, and the astrologer—significant precursors of our modern "medium."

The saying that if God did not exist it would be necessary to invent him, was very smart but very silly. Nothing can be done for us by figments. Whosoever will be saved, before all things it is necessary that he keep his allegiance to the truth. We see what has come of Napoleon's politic invention of a God in France. The fruits are a frenzy of clerical reaction on one side and a frenzy of iconoclastic atheism on the other. Belief would have restored and readjusted itself better if it had been let alone. But if morality has hitherto been based on religion, there must be reason to fear that, the foundation being withdrawn, the superstructure will fall. That morality has hitherto been based largely on religion, so far at least as the great majority of mankind are concerned, will hardly be doubted, however wanting in definiteness or vividness the notions of a moral governor and of retribution may have been in many minds, and however men may have sacrificed to immediate impulse that

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which, on serious appeal, they would have acknowledged to be their real good. "Virtue," says Paley, in his clear and decisive way, "is the doing good to mankind in obedience to the will of God and for the sake of everlasting happiness." So surely thought even the men of the world in Paley's day. All but the members of the Hell-fire Club—and perhaps even they—would have said, "Let me die the death of the righteous, and let my last end be like his." Besides, such genuine Christian characters as there were, exerted an influence beyond themselves as practical warrants for the observance of Christian morality and as pledges of the happiness attending it.

The presence of the theistic sanction has been especially apparent in all acts and lives of heroic self-sacrifice or self-devotion. The man who has led a forlorn hope, taken an oar in a lifeboat, risked his own life to save the lives of others, or given up all his personal enjoyments to the service of his kind, if he has not definitely placed before himself the approbation of God and a reward in Heaven, has felt assured that in losing his life he should save it, and that it would be well for him in the sum of things—an assurance which implied the existence of a supreme moral power. We are told that acts of heroic self-sacrifice and self-devotion will become of less consequence to mankind when all shall be regulated by a scientific sociology. It may be so, but hitherto humanity could hardly have advanced without them.

While religious belief is unshaken, religion is in fact the sole moral code. To a primitive Christian, morality was the will of God, manifested in the character and life of Christ; though by "will" in this connection was meant, and is still meant, not mere fiat, as some anti-theistic critics suppose, but divine volition in accordance with divine nature. So it has been with the Jew, with the Mohammedan, with the early Greek, with the early Roman, and with all whose religious faiths have been sincere and unimpaired. With misgivings, conscious or unconscious, about religion, came the desire of finding a sanction for morality independent of theology; in other words, moral philosophy. Not that moral philosophy is antagonistic to theism, for most of the moral philosophers—all, indeed, whose philosophy has been practically effective—from Socrates downward, have been re-

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ligious, and have regarded their philosophy as the ally and confirmation of religion. But they have all successively sought an independent sanction, or at least an independent demonstration, of morality; and in this they have not been successful, at least they have as yet arrived at no agreement. Where they take as their foundation the authority of conscience, the categorical imperative, or the command of nature, it is clear that they are still within the circle of theism. Conscience, as a mere evolution of tribal experience, may have importance, but it can have no authority, and "nature" is an unmeaning expression without an Author of nature, or rather, it is a philosophic name for God. Comtism, while it abjures theism, loudly proclaims itself a religion. A religion in fact it is, and, as has often been remarked, a reproduction of Roman Catholicism with Comte for the Messiah, and a calendar of historic saints. It indeed assumes the prerogative not only of a religion but of a revealed religion, since it bids humanity, which has so far been in constant progress, henceforth to stand still under the organization, social and religious, decreed for it by Comte.

Evolution is not moral, nor can morality be educed from it. It proclaims as its law the survival of the fittest, and the only proof of fitness is survival. The tiger has been as much evolved as the lamb, and the most noxious of human beasts, if he can hold his own in the struggle for existence, at whatever expense to his fellows, has as good a right to existence as Socrates. The only question as to any act is whether it conduces to the preservation of the agent and to his "quantity of life, measured in length as well as in breadth"—to borrow Mr. Herbert Spencer's expression—in other words, to his length and intensity of enjoyment. At the utmost, the consequences of the act or of the course of life may be extended to the progeny of the agent. We are endowed with different dispositions, and if a man succeeds in gratifying his own tastes, lives long, and transmits a strong constitution to his children, evolution apparently has nothing to say against him. It may say to Birchall that he made a mistake in not destroying all the evidences of Benwell's identity, to Palmer that he made a mistake in exposing himself to detection by haste in poisoning Cook, to Napoleon that he

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made a mistake in invading Russia; but it cannot rebuke or denounce any one of them in the name of morality. It may talk of the general interest of society; but, even supposing that it could bring the general interest of society clearly within the view of Birchall, Palmer, or Napoleon, he would ask upon what showing he was bound to prefer the interest of society to his own. Of course there is danger from the hangman, or from human resentment; but supposing this can be escaped, as it often may be escaped, there is apparently no more to be said. A man acquires a great estate by fraud, enjoys it wisely, uses his wealth liberally, makes himself popular, takes good care of his health, lives long, dies respected, and leaves healthy offspring. Freed by his opulence from wearing toil and injurious exposure, he exhibits all the energy, vivacity, and sociability which are held out as the rewards of a right course of living. Morality says that he is miserable, but how can evolution condemn him? Evolutionary philosophers give excellent precepts for healthy and comfortable living; but these precepts apparently the man fulfills, and thus he fulfills all righteousness. They may talk to him, indeed, of a more perfect state of society to be some day brought about by ethical science, in which he would be out of place; but he, having only one life, takes the world as he finds it, and makes the best of it for himself. Why should he sacrifice himself to the future of humanity? Evolution, being a quasi-mechanical and necessary process, will fulfill itself without effort or sacrifice on his part. And the perfect state, after all, will be attained only to pass away in the everlasting round of integration and disintegration, or whatever the wheel of existence may be called. Men of greedy and daring character who feel their force, will not be hindered from using it for their aggrandizement by arguments of the tea table. They will grasp, by all the means in their power, the largest share attainable of such enjoyment as may fall to the lot of beings always on the verge of annihilation—a drawback to which, by the way, in pictures of a secularist millennium, reference is seldom made.

My late friend, Mr. Cotter Morison, the most thorough-going of agnostics, says in his "Service of Man":

"The sooner the idea of moral responsibility is got rid of, the better it

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will be for society and moral education. The sooner it is perceived that men will be bad, do what we will, though of course they may be made less bad, the sooner shall we come to the conclusion that the welfare of society demands the suppression or elimination of bad men, and the careful cultivation of the good only."

In another passage he says:

"Virtue may, and possibly will, bring happiness to the virtuous man; but to the immoral and the selfish, virtue will probably be the most distasteful or even painful thing in their experience, while vice will give them unmitigated pleasure."

Mr. Morison's method, as we see, is "suppression and elimination." First catch your hare. The bad man may successfully resist suppression. Perhaps he may suppress the good. If he do, he will be perfectly within his right. His taste lies in one direction; that of the man who styles himself good lies in the opposite direction. But both tastes are equally natural, equally the offspring of evolution. Force alone, of muscle or brain, can decide to which of them the world shall belong.

The author of "Rocks Ahead," Mr. Greg, was a thorough-paced free thinker, but he saw the value of belief in a future life as a police force, and trembled for the consequences of its withdrawal. This is not the right way of looking at the matter; beliefs kept up as police forces are altogether odious, and are ruinous in their ultimate effect. But of the fact there can be no doubt. Philosophies such as that of Plato, and that of the Roman Stoics, of Marcus Aurelius, and of Epictetus, which imply some transcendental sanction for morality and inculcate self-sacrifice, as that of Plato does, to the extent of martyrdom, even if they do not definitely include belief in a future state, really imply it. It is absurd to say that a life of self-denial and endurance, ending in martyrdom, is happiness, unless there is compensation beyond.

We have in China and Japan examples of communities with a social morality sufficient at all events to hold them together, and without religion. Chinese religion appears to have nothing in it beyond some ceremonial observances, which are perfectly hollow, and a venerated social code. In Japan, such religion as there is seems to be of the lowest kind and confined to the lowest class. China and Japan, however, though agnostic, are not

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skeptical; they are still governed by tribal tradition, which has a quasi-religious force. I speak of the Japan of yesterday; the new Japanese civilization is imported from Christian countries, and is an experiment the results of which we have still to see.

We must remember that, whatever may be our philosophic school, we are still living under the influence of theism, and most of us under that of Christianity. We have inherited a Christian or a theistic code of ethics, and characters cast in a corresponding mold. This is particularly the case with regard to those gentler virtues the reverence for which is the special protection of the weak against the strong. There is no saying how much of theism, or even of Christianity, still mingles with the theories of agnostics. When the agnostic assumes that the claims of the community are superior to those of the individual, when he uses such a term as "conscientious," and even when he speaks with reverence of an "eternal source of energy and force," careful scrutiny of his expressions might discover a trace of theism. An infinity of mechanical or material power would be no object of reverence. The generation after next may perhaps see agnosticism, moral as well as religious, tried on a clear field. By that time, possibly, science, whose kingdom seems now to have come, will have solved in her own way the mystery of existence; at least so far as to provide us with a rule of life, personal and social. It is not likely that man will cease to inquire what he is, whence he comes, and whither he is going. The profession of safe acquiescence in ignorance may sound very philosophic; but man is inquisitive, and as often as he raises his eyes to the starry heavens his curiosity will be called into play. In the mean time society will be held together by established opinion, by municipal law, and by natural affection. But established opinion cannot forever survive the fundamental beliefs which gave it birth. The sphere of municipal law is limited, and it touches no one who can manage to evade its penalties. The influence of natural affection is limited also. Alexander Borgia was a very loving father, and filled the Vatican with his yells of anguish when he lost his son, the Duke of Gandia.

There is nothing pessimistic in this; no want of faith in the future of humanity, or in the benevolence of the power by which

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human destiny is controlled. The only fear suggested is that society may have a bad quarter of an hour during the transition, as it has had more than once before. The withdrawal of religious belief must, however, one would think, have begun to operate, and some observers may be in a position to say what the effect is and how far philosophy or science has been able to fill the void. As the twilight of theism and Christianity still lingers, nobody expects a sudden change. Least of all does anybody expect a sudden outbreak of immorality among philosophers, whose minds are elevated by their pursuit and in whom the coarser appetites are sure to be weak; so that the sensitiveness which men of this class are apt to show, whenever a connection is suggested between religious and moral agnosticism, is out of place. But is any moral relaxation visible in the quarters where it might be expected to appear; say among the young men in the cities, or among the artisans who have quickness of mind enough to catch the popular skepticism of the day without having sufficient knowledge or power of mind to evolve anything for themselves, or to appreciate any progress which constructive science in the ethical or social sphere may have made? The late Bishop Fraser, of Manchester, was a remarkably candid man as well as a close observer, and his diocese, being full of active-minded artisans, afforded the best possible field for observation. He certainly believed that moral relaxation was visible. Perhaps in America the phenomenon, supposing it to exist, would be less apparent, because here the absence of any established church to chafe skepticism into violent antagonism to religion mitigates, as has already been said, the violence of disintegration. I think I have myself seen a case in which, when a youth of the most highly-educated class, having been religiously brought up, embraced Positivism and cast away his religion, a great change of character followed, and a lapse into covetousness, unscrupulousness, and unveracity ensued. But a single instance goes for little. Those whose field of spiritual or social labor is among the clerks and mechanics of New York might be able to tell us more.

GOLDWIN SMITH.

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THE GROWTH OF SENTIENCY.

MULTIPLICATION is the primal lesson of living beings. If all the plants upon the surface of the earth should be destroyed except one young palm, one young oak, and one young pine, and these should be allowed to bear their fruits, and every seed should grow and reproduce its kind in a succession of generations, the palm, the oak, and the pine might live to see their progeny covering the whole earth. And the younger palms, oaks, and pines would stand so dense under the shadow of the taller forests that the world would be a jungle impenetrable to the larger beasts. Such are the powers of reproduction with which palms, oaks, and pines are endowed; and yet they do not equal those of many lower orders. This marvelous fecundity, especially in the lower forms, has played an important part in the evolution of plants, the nature of which must be understood. Few plant germs reach adult life. Every successful passage through the term of existence is offset by a multitude of failures. The life of the very few is secured by the martyrdom of the very many.

If many are called and few are chosen, how are the favored few selected? The answer is the modern doctrine of evolution; it is the principle of "the survival of the fittest in the struggle for existence"; it is the philosophy that Darwin embodies in the phrase "natural selection." Nature gives more lives than she can support. There is not enough food for the individuals requiring it, and only those live that obtain sufficient nutriment. There is not enough room for the growth of all the germs produced, and only those live that find a habitat. Of the multitude, some perish on the rocks, some languish in the darkness, some are drowned in the waters, and some are devoured by animals. The few live because they do not fall on the rocks, but are implanted in the soil; because they are not buried in the darkness, but are bathed in the sunlight; because they are not

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overwhelmed by deep waters, but are nourished by gentle rains; because they are not devoured by the hungry, but dwell among the living. The few live, in other words, because they are the favorites of surrounding circumstances. In the more stately phrase of the philosophy of evolution, they are "adapted to the environment." But this general statement must be followed a little further, that its deeper significance may be grasped.

The earth, as the home of living beings, presents an almost infinite variety of conditions, and beings not adapted to one set of these may be adapted to another; so that a great variety of living forms are produced, suited to a great variety of circumstances. Plants are developed to live in air, on the land, and in the sea; in polar zones, in temperate lands, and in torrid regions; on mountains, on plains, and in valleys; in arid lands and in humid lands. The life which teems upon the earth is thus crowded into every available spot, and yet the fountains of life never fail. Every spring sends its stream into the flooded world. There is life for all the earth, and more life, and still more life; forever and forever it comes. Under such conditions of abundance, of wanton superfluity, the new-born plants are ushered into the world to compete with one another for continued existence. Thus the whole world of vegetable life is in a struggle; all plants are engaged in warfare one with another.

Let us look at some of the ways in which this competition is carried on. The plant must have air and water, for its food is the body of the wind and its drink the body of the storm; but food and drink are only the vehicles of life, not life itself. Plant life is sunlight, transformed and organized by air-fed tissue. The life of the forest, of the meadow, and of the mossy bank is drawn from the effulgence of the orb of day, for it is in the loom of the plant that the light of the sun is woven into life. For this light every plant struggles; toward the fountain every plant turns, that it may drink; aloft it lifts its head, higher and still higher above its fellows, and abroad it stretches its branches, and athwart the course of the sunbeams it spreads its leaves, that it may catch as much sunlight as it can. The plant that lifts its head highest, and spreads its limbs widest, and clothes itself with the densest verdure, is the successful competitor. Its

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prosperity is its neighbors' adversity; its life is its neighbors' death. A shadow is the sword of a great tree, and with this weapon it slays a thousand. The life of one is the death of many. But those that drink from the fountain of life are the best of their race; those that are stricken with the shadow sword fall because they have less of plant excellence than their destroyer. It is a survival of the fittest; it is natural selection; it is evolution toward higher life.

Animals live on plants. They devour tissue and transmute vitality, and here the method of natural selection is reinforced. The sweetest and most nutritious plants become the food of animals; those that are bitter, those whose tissues are hard, those that are clothed with thorns, and those that secrete poisons, escape and live. So the plants that have killed their neighbors with shadow swords make defensive warfare on the animals that come to devour them; and the hard, the bitter, the stinging, and the poisonous are in the long run the successful competitors for life. The progress of the few is through the death of the many, and out of this progress are developed hardness, bitterness, piercing cruelty, and deadly poison. Time would fail to tell how plants bear flowers that ever become more graceful in form, more beautiful in color, and more delicious in perfume, through the agency of winged insects; how fruits become luscious and more luscious through the agency of birds of the air. But so it is. The tender and the hard grow on the same hillside, the beautiful and the ugly grow in the same forest, sweet odors and foul stenches arise from the same meadow, and salubrious and noxious fruits may be gathered from the same copse. The progress of the few is secured by the sacrifice of the many, and good and evil flourish in the same soil.

Turning to contemplate the evolution of animal life, we find facts of like character. If a barrel of oysters should be planted in an estuary of the sea and their progeny should all be preserved in successive generations for a decade, the oyster field thus produced would supply a bounteous repast for every man, woman, and child on the face of the earth. A multitudinous population is crowded into every possible region and place, and the fountains of life are ever flowing. A few may live, while

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many must die. Besides the unconscious passive warfare of the plant, we thus have the designed and aggressive warfare of the animal, and all the world is at war. Air, earth, and sea are vast battlefields filled with animals large and small, flying through the air, prowling on the land, and swimming through the waters, on predatory forays—a world filled with all imaginary forms of life, all seeking whom they may devour. Those that fight best are saved; those that conceal themselves most deftly are preserved; those whose flight is most rapid reach protection. It is in this manner that many living beings are gradually furnished with defensive armor, and that defenseless beings grow sharp of vision, quick of hearing, and fleet of motion. Thus weapons of multitudinous forms are developed. Insects are provided with saws, knives, and stilettos; other creatures have teeth that pierce and cut and grind, and sharp beaks and talons and hoofs and tusks and horns; and some defend themselves with foul odors and deadly poisons. Strange, terrible, and loathsome are the many defensive and offensive devices of the animal world; and all these grow out of the struggle for existence. Competition among plants and animals is fierce, merciless, and deadly. Out of competition fear and pain are born; out of competition come anger and hatred and ferocity. But it must not be forgotten that from this same competition arise things most beautiful and lovely, such as the wing of the butterfly, the plumage of the bird, the fur of the beast, the hum of the honey bee, the song of the nightingale, and the chatter of the squirrel. So good and evil dwell together.

The prodigality of life in the lower forms and the competition which arises therefrom, lead to two results, namely, the differentiation of co-ordinate species and the development of higher forms. These results combined are known as evolution. Germs of life are carried by wind and water, by animals themselves, and by other agencies, and are distributed wherever air may be wafted, wherever water may flow, wherever walking animals may go, wherever winged animals may fly, wherever creeping animals may crawl, and wherever finned animals may swim. The mountain, the hill, the plain, and the valley are thus perennially covered with germs, and the moor and the fen are abundantly

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supplied. The springs, the brooks, the creeks, the rivers, the lakes, and the seas are filled with germs. Seeds are carried even into most inhospitable places, such as caves and hot springs. Wherever they are carried they are developed, and gradually species are evolved adapted to all these varying environments. Thus arises a multiplicity of forms peculiar to the multiplicity of habitats. The mountain crag becomes the home of the dwarf, the opulent valley the home of the giant. The fiord has its denizens and the tropic sea its people. The rock is clothed with lichens and the ooze with moss. The sandy desert of the tropics has its fields of opuntia; the icy desert of the paleocrystic sea has its protococcus. In each habitat, by the death of those that fail in the struggle for existence, and by the preservation, from generation to generation, of those that develop the characteristics best adapted to environment, a serial progress is made. The new species developed have characteristics which constitute them higher beings in the scale of existence. These beings climb the ladder of life by rungs which, though separated by generations, are in fact so close together on the scale of progress that the minute degrees of evolution are indistinguishable when taken separately, and are only to be recognized in groups; as the motion of the hand on the dial is not marked by moments, but by hours. Yet germs and generations are plenty. Lives and years multiply, and all these bring the multiple changes which constitute transformation. By such processes of evolution species are differentiated and biotic life is developed.

The law of evolution which governs that mode of life called "vitality," is denominated "the survival of the fittest in the struggle for existence." Under its sanction diverse species are developed. Most of such species make little or no progress; a smaller number develop a higher life; and an ever-diminishing number of species bourgeon and grow still higher and higher, until only a few reach exalted position, and man alone crowns the column. The great efficiency of the law of the survival of the fittest depends upon the enormous multiplicity of individuals, which causes them to compete for life. If the germs developed should not be more than equal to the duty of supplying the waste caused by death, the rate of progress would be greatly

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diminished, and life would become stationary, or nearly so. Other things being equal, the lower the form the greater the rate of reproduction; and steadily, as forms become higher, the rate of reproduction is diminished, until in the highest it is scarcely more than enough to supply the demands of current life. Under this law the rate of evolution becomes slower from age to age, with advancing development. The survival of the fittest gives hope to the worm, but despair to the man. It is a process which comes to an end; for the beings developed under the law ever become more complex, so that reproduction demands more and more of the energies of life, until a species is so highly developed that it can do no more than preserve its numbers, and has no surplus to be slain in the interest of progress.

Now the rate of progress is known to have been steadily accelerated from the earliest geologic time to the present. For many decades scientific men have been studying the life of the globe, as it has been entombed in the rocks from Algonkian time to the present. At first vast periods elapsed during which little progress was made, but from age to age the rate of evolution was increased until the higher animals appeared. Then a new era was inaugurated, and age followed age with greater and still greater activity, until, as we see in the Neocene rocks, forms were developed in ever shorter periods. The latest geologic times have been the theaters of the greatest biologic development. If this is true—and it is a well-established fact in paleontology—then some new method of evolution must obtain; a second law must be added to Nature's code of procedure. That law has been discovered; in fact, it was known first.

When animal life was evolved, sentiency was developed with it. The nervous system is the plexus by which the organs of the body are so correlated and made interdependent that they work together and assist one another. The organs feel with and for one another, and every one labors for the common good. If a larger share of effort is demanded from some organs than from others, such others recognize the fact by generously supplying the necessary materials of life. If the animal must escape by flight, its wings become the centers of interest to all the other organs, which become opulent donors of vitality. In this man-

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ner the organs of flight are developed by exercise. If, in the battle of brutes during the struggle for existence, horns are brought into play for offensive or defensive purposes, under the guidance of sentiency all of the other organs pour their power into that one which has become for them the tower of defense. It is in this manner that animals grow unsymmetrically, the preference being given to those organs or parts which, under the circumstances, are of the highest importance; and the important part is that which is used, the development being in the direction of size, of strength, or of deftness, as the circumstances demand. Again, the conditions of life may be such that certain organs or parts are rarely used, and, being unused for the common good, they are neglected. From the unused parts the vitality is drafted to the used parts, and the former gradually, from generation to generation, become weaker, until they are atrophied. In the economy of organic or sentient life, the drone is doomed. Thus, by the effects of use and non-use, species are multiplied, and species whose development is in the most fortunate direction are lifted into higher planes of existence.

All this co-operation, leading to evolution as it does, is born of sentiency, and special organs of sentiency are slowly produced to perform special functions. The termini of the nerves become more efficient organs of touch when this sense is of advantage to the species, for the other organs willingly yield the vitality necessary for such development. When it becomes advantageous to the species that the animal should select its food properly, as it must at every feast, all the other organs yield vitality to those nerves that guard the portal to digestive life, and thus taste is developed. Whenever it becomes important to follow the track of the animal which is to be the source of food, or whenever, in the selection of food, odors can be made a guide, all of the organs yield a store of vitality to the nerves that guard the entrance to the lungs, and thus the sense of smell is developed. When enemies lurk under the veil of darkness, or announce their approach from afar in murmurs on the air, all the organs of the being become interested in the detection of sounds which the enemies may make, and supply to the organ of hearing all the life that can be used; thus organs of hearing are evolved. The light of day is

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used to signal the presence of food and drink, or to herald the coming of foe or of friend, and thus the watchful eye is the favorite of the community of organs; all yield to its need, and by constant use it attains to the highest development. Organs of sentiency, when gained, may be lost, for the ear unthrilled by sound must die, the eye unpulsed by light must expire.

Thus it is that all of the organs are developed through the agency of sentiency, and that the special organs of sentiency themselves are most highly evolved, under the sanction of the law that the organ which is of the most important use to the animal, under the conditions which the environment presents, is the one exercised. The stimulus given to the evolution of special organs under this law results in the production of many monstrous, uncouth beasts, with disproportionate parts. Beasts of huge size are developed, because bulk alone sometimes gives mastery; but these monsters, though they often appear in the course of geologic history, are comparatively short-lived as species, since the undue tendency to monstrosity ultimately defeats itself. Animals of proportions adapted to special conditions do not persist with changing environment. As the conditions are in constant change, these marvelous animals are put at a disadvantage and are soon extinguished; but many develop special organs that prove to be of more permanent value, and such animals come to be most highly evolved. One set of organs of prime value is developed under the law of exercise; these are the organs of sense, because sentiency leads to percipiency and percipiency to volitiency. And that knowledge which arises through percipiency and that control of conduct which arises through volitiency, lead to higher species through evolution, until one species, man, stands at the head.

The "environment" under which the number of species increases and certain species make progress in the scale of being, means more than the physical conditions under which they exist. Besides the physical environment, there is a life environment. Each species has conditions imposed by other beings. Some plants are parasitic; and plants not only destroy one another, but protect one another. Then animal life is derived from plant life. Some animals are parasitic; some use others for their food; and

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animals protect one another and destroy one another. It is thus that the environment has two series of complex conditions, one derived from physical nature and another from biotic nature. These conditions are multifarious and complex, and the plexus of causation is not easily unraveled; but they all work together for the survival of the fittest, and conspire in many complex ways to promote development by exercise. Some of these secondary laws, like that of sexual selection, play important roles, but for the purposes now in view they may be neglected. The co-operating law of heredity also has been left without exposition. This only can be said here: germs are not born of germs, but of adults, and thus the efforts of protracted life are handed down by inheritance. Adult generation is the fact observed, and it fully explains the effects produced. Germ generation is a fancy of the speculator who coins axioms about the unknown. Such hypotheses are valuable in science, but they must not be used as established principles for its foundation.

It has been seen that the law of selection becomes less and less operative as species become higher and higher. On the other hand, the law of exercise is more efficient with the progress of life forms. It is thus that the higher evolution of animals is chiefly dependent upon the law of exercise; and when the organs developed in this manner are of general and perpetual value, evolution proceeds in a geometric ratio. It should also be noticed that the law of exercise co-operates with the law of selection in securing the preservation of the fittest among those developed by exercise.

Under selection and exercise three results are effected: 1. A multitudinous host of living species is produced, covering the land, filling the air, and populating the sea. This gives rise to the science of systematic biology, in which the forms of species are studied in relation to their integral organs, and in which all are classified. 2. By the combined agency of selection and exercise, higher and ever higher species are evolved, in classes the members of which are connected by genetic lines. Thus, animal forms are arranged in series, or lines, diverging from the lowest to the highest. Many lines of evolution have ended, because the beings developed were not ultimately adapted to an evolving environ-

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ment; but those most fortunately differentiated have continued to the present time, and their lines of genesis lead back to the beginning of life in Algonkian time. Thus animals are seriated; the succession of forms found in the animal, from the germ to the adult, is compared with the succession of forms found in the geologic series, and lo! it is an epitome of the same. 3. Living beings are adapted to environment, and this results in a geographic distribution of profound interest. The geography of life is one of the most alluring studies of modern science, for by it the laws of life are shown to be related to the laws of climate. The student in this field must be both a physicist and a biologist. He is interested, for instance, in the great ocean currents.

> Now turn to contemplate the ocean vast:
> Wherever mariner is borne by mast,
> There mighty currents flow from clime to clime,
> Through torrid zones and zones of crystal rime.
>
> Where out of polar fiords glaciers creep,
> There ocean rivers rise, and, plunging deep,
> Roll down the world to equatorial main,
> From iceberg seas to seas of hurricane.
>
> And other rivers rise in seas of sun,
> And poleward far their spreading waters run,
> To give the bays and inlets sweeter calm,
> And bless the continents with zephyr balm.

His field also embraces all the wonderful movements of the atmosphere, set in motion by the revolution of the earth, diverted by the ever-changing effect of the sun, and still further influenced by the conformation of the land in continental plateaus and mountain systems. All elements of climate fall into his theme, with zones, altitudes, and depths; and the whole field of astro-physics lies in his way for exploration. With this he must study the conditions of life and the systematic groupings of animals. The domain of psychology also constitutes a part of his field, for the science of sentiency is the foundation of the science of psychology.

The plant has vitality, and perchance the beginnings of sentiency may be found in some species; but this mode of life is the primal attribute of animals. They feel pains and pleasures,

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and have organs for the purpose. The struggle of the plant is for life, because its sole endowment is vitality. The struggle of the animal is also for life; but to this is added the struggle for happiness, because of the endowment of sentiency. As special organs for this purpose are evolved, the endeavor to secure happiness grows. Thus it is that the second law of evolution is developed by exercise in the endeavor to secure happiness. The animal endowed with the power of feeling pains and pleasures, constantly exercises not only its muscular organs, but still more its sentient organs. The animal flees from danger, and defends itself from attack. In the alembic of life, more vitality is evolved than is needed for the stern purposes of bare existence; so animals engage in sports, and the time is shared between toil and play. The cubs of the bear dance on the greensward; the swallow floats on the air with lilting wings of joy; the trout plays in the brook as if sunlight were elysium.

The life of the animal is one of great vitality, from the very lowest forms, seen only with the microscope, to the busy crowd of the city mart. This vitality is the chief source of the evolution of sentiency, which reacts upon the physical organs until sentient life and exercise seem to be one. All pleasures, all pains, all emotions, are expressed in activities. So far as human investigation can discover, they are only activities. Such is the teaching of the latest scientific psychology.

The evolution of life is accomplished in four stages. In the first mode of life, which is vitality, progress is made by the survival of the fittest in the struggle for existence. In the second mode of life, which is sentiency, progress is made by the development of organs in the struggle for happiness. In the third mode of life, which is percipiency, progress is made by the discovery of truth in the struggle for knowledge. In the fourth mode of life, which is volitiency, progress is made by the establishment of justice in the struggle for peace.

J. W. POWELL.

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MADAME DE STAËL.

AMONG the many important works which have lately been published on the Continent, reconstructing the history of France during the struggle of the Revolution and during the periods that immediately preceded and followed it, scarcely any have been so comprehensive, and not many have been so valuable, as "The History of the Life and Times of Madame de Staël," by Lady Blennerhassett. The author—a Bavarian lady who was an intimate friend and favorite pupil of Dr. Döllinger—has brought to her task a knowledge, which is scarcely rivaled in its completeness, of the French, German, English, and Italian literatures relating to the period; and she has produced a work of which it is in one sense the merit, but in another the defect, that it sweeps over a far wider field than might be expected from its title. It is seldom, I think, a judicious thing to confuse the provinces of history and biography by turning the life of an individual into an elaborate history of his time; and in the few cases in which this method has been successfully pursued, the biographer has selected as his subject some man like Cromwell, or Frederick the Great, or Napoleon, who was indisputably the chief mover of his age. When figures of less prominence are chosen, both the history and the biography are apt to suffer. The true perspective, or relative magnitude, of events is impaired, and the book is almost sure to lose something of its artistic charm and of its popularity. Mr. Masson, as it seems to me, committed a mistake of this kind in his "Life of Milton," when he grouped around the great Puritan poet—who, however illustrious, was certainly not the central figure of his time—a full and valuable history of the Commonwealth, and of large sections of the reigns of Charles I. and Charles II.

In like manner, a great part of the work of Lady Blennerhassett is not biography, but history, and history of a very high order. Madame de Staël was so closely connected in her own

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person and still more through her father, with the early events of the French Revolution, that we accept with gratitude the admirable sketch of that period which Lady Blennerhassett has given us; but we should scarcely expect to find in a work primarily devoted to Madame de Staël full and masterly accounts of the ministry of Turgot, of the rise and teaching of the Economists, of the rival influence of the writings of Montesquieu and Rousseau on the French political character, of the effect of English influence and American example in preparing the Revolution, and of the part played by Germans and Swedes in French politics. At the same time, the pictures of the social and intellectual life prevailing in the different countries with which Madame de Staël was connected, and the full accounts given of a crowd of persons with whom she came into casual contact, though in themselves both interesting and valuable, often tend to divert the reader from the main subject of the book. In truth, Lady Blennerhassett has not been able to resist the temptation of a very full mind to pour out all its knowledge, and, while possessing many rare and brilliant literary gifts, she appears to me to want that restraining sense of literary perspective which gives biography its true proportion and symmetry. This defect has, I fear, diminished the popularity of a most valuable book. In the original German, and in an excellent French translation which was revised by the author and which I especially commend to my readers, the work consists of three very substantial volumes. There is also an English, and somewhat abridged, translation. A hasty reader will readily conclude that, in this short and crowded life, such a space is far more than should be allotted to a long-vanished figure which, though interesting and brilliant, was not of the first magnitude. But if he has the courage to persevere, he will soon discover that few modern books have lighted up in so many directions the political, social, moral, and intellectual history of a momentous period, and have exhibited at once so many kinds of talent and so wide a range of sympathies and knowledge. The complete competence, the firm, sober, and—if I may use the expression—masculine judgment with which Lady Blennerhassett has grasped the great political problems of the period of the Revolution, is not less conspicuous than

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the truly feminine delicacy of observation and touch with which she has delineated social life in many different countries, and painted the finer shades of many widely-dissimilar characters.

Anne Louise Germaine Necker was born in Paris on April 22, 1766. Her father was at that time known only as a Swiss banker of high character and reputation, who had amassed a vast fortune and had come to Paris for his private affairs; but about two years after the birth of his daughter he was appointed to represent the interests of Geneva at Paris, and when she was ten years old he rose, for the first time, to a leading place in the ministry of France. Her mother had been the Mademoiselle Curchod whose charms and accomplishments had captivated Gibbon when he was a young man at Lausanne. Every reader of his autobiography will remember the famous passage in which he describes his engagement, the opposition of his father, and the resignation with which he "sighed as a lover, but obeyed as a son." M. d'Haussonville has published from the archives at Coppet some melancholy letters which show clearly that Gibbon exhibited more heartlessness and inflicted more suffering than might be gathered from his own stately narrative. But no lasting scar remained. After a few years of poverty and hardship, during which she was obliged to earn a livelihood as a schoolmistress, Mademoiselle Curchod found in Necker a husband who realized her fondest wishes; and when, soon after, she became the center of a brilliant salon at Paris, her former lover, then in the zenith of his fame, was often among her guests. Madame Necker did not always abstain from slightly-veiled allusions to the past, but it is pleasant to see that a warm and solid friendship seems to have grown up between Gibbon and both his host and hostess. A pretty anecdote is related of how, on one occasion, after he had left the house, they agreed in expressing the deep regret with which they looked forward to his approaching departure for England; when their little daughter, who was then just ten years old, gravely offered to prevent the catastrophe by marrying the illustrious, but by no means prepossessing, historian.

It was a saying of Talleyrand that he who had not lived before 1789 had never known the full charm of life. Germaine Necker grew up in the last bright flush of a society which had,

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perhaps, as many fascinations as any that the world has known. Her mother, however, though she occupied a prominent position in this brilliant world, was never altogether of it. She shared fully, indeed, its intellectual tastes, and had herself won some small place in literature. She threw herself ardently into its philanthropic movements, and especially into that for the reform of the hospitals. She formed a warm and true friendship with Buffon and Thomas. She corresponded with Voltaire, and attracted to her house most of the best writers of the age. But to the last she remained eminently and characteristically Swiss, and she never acquired the light touch, or the easy, pliant grace, of the true Parisian. She was a little cold, a little prim, a little pedantic, a little self-conscious. Neither her reserved manners, nor her strong domestic tastes, nor the vein of Puritanism that ran through her opinions, harmonized with the lax and skeptical society around her, and it was no sacrifice to her to exchange the splendors and the gayeties of Paris for her peaceful retreat on the Lake of Geneva.

In this, as in most respects, her daughter was very different. In her the Swiss element had altogether disappeared, and, as is often the case with the eminent child of eminent parents, her character shot out in directions wholly unlike both that of her father and that of her mother. She was not beautiful, though her dark and eminently lustrous eyes, beaming with intelligence, and her rich brown tint, gave some charm to her large and rather coarse features; while her massive shoulders, arms, and breast, her full lips, and the firm grasp of her vigorous hand, indicated a strong, frank, ruling, and passionate nature, overflowing with life and with many forms of energy. Her education was somewhat fitfully conducted, but she threw herself eagerly into literary enthusiasms. At fifteen we find her annotating Montesquieu. Raynal and Richardson were among her idols, but, like most of the more ardent spirits of her generation, her ideas and character were molded chiefly by the genius of Rousseau. Her first work of importance was an exposition of his doctrines, and his influence left deep traces on both "Corinne" and "Delphine." Her strong, sane judgment, however, her genuine humanity, and the moderating influence of her father, saved her from being swept

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away, like Madame Roland and most of the disciples of Rousseau, by the sanguinary torrent of revolutionary enthusiasm; and in times of wild passion and exaggeration she usually exhibited a singular soundness and sobriety of political judgment. She was sometimes mistaken, but on the whole it may well be doubted whether there is any other French writer or politician of the period of the Revolution whose contemporary judgments of men and events have been more frequently ratified by posterity.

In this respect she was not of the school of Rousseau. In another and less admirable way she was curiously untouched by his spirit, for few superior intellects have been so openly, so utterly, insensible to the charms of nature. She once spoke of "the infernal peace" of her Swiss home, and she candidly acknowledged that if it were not for respect for the opinions of others she would not open her window to look for the first time on the Bay of Naples, though she would gladly travel five hundred leagues to make the acquaintance of a man of talent. On the borders of the Lake of Geneva, with one of the fairest scenes on earth expanding before her, she was incessantly pining for "*le ruisseau de la Rue du Bac*"—for the interest and the excitement of a society which had become the passion of her life.

Her gifts of conversation were very wonderful, and she had a wide range of sympathies, keen insight into character, and great power of describing it by a few vivid words. She had, however, no reticence or reserve, she made many enemies by her unbounded frankness, and she often fatigued or overwhelmed by her exuberant animal spirits and by the torrent of her words. At the same time, unlike most great talkers, she possessed to a very eminent degree the gifts of learning from others, of grasping the characteristic features of their teaching, of awakening sympathies, of dispelling bashfulness, and of kindling latent intellect into a flame. Few women combined so remarkably a sound and moderate judgment with extreme vividness and impetuosity of emotion. She admired deeply, and she generally admired wisely; her first judgments and impulses were almost always generous; and, although she was subject to violent gusts of passion, she could be very patient with those she loved. Through her whole life she was the warmest and most self-sacri-

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ficing of friends, and her few antipathies were singularly devoid of rancor. One of those who knew her best pronounced her to be "absolutely incapable of hatred."

She soon became the most attractive figure in the salon of Madame Necker, and as the health of her mother declined she became its central figure. Her rare accomplishments and her position as a great heiress naturally would have drawn many suitors around her, but in that age the determined Protestantism of her family was a formidable barrier. It appears from something that she wrote late in life to a German correspondent that, when a mere girl, she had come under the spell of Louis de Narbonne, who asked her hand, and with whom, in after years, she had relations which caused much scandal and which greatly colored her political life. The story that her parents at one time contemplated a marriage between her and William Pitt, on the occasion of his visit to France in 1783, was discredited by Lord Stanhope; but M. d'Haussonville pronounces it to be quite true, though there is no clear evidence that Pitt was apprised of the wish of the Neckers. She was then only seventeen, and her vehement protest against an English marriage nipped the project in the bud. In 1786, however, a marriage was negotiated for her with the Swedish ambassador, the Baron de Staël, who was at that time a special favorite of Gustavus III. It was a marriage into which but little affection entered, and twelve years later it ended in a separation. There was afterward, it is true, a partial reconciliation, and she was present with her husband when he died, in 1802, on the way from Paris to Coppet.

Her marriage gave her an independent position, and she mixed much in the politics of the early days of the Revolution. She corresponded regularly with the Swedish king, and formed intimate friendships with great numbers of the guiding politicians. The proudest moment of her life was in August, 1788, when, amid a transport of transient enthusiasm and extravagant hopefulness, her father was for the second time called to the helm. Her devotion to him amounted almost to adoration, and she would never acknowledge, what the rest of the world soon perceived, that, though excellently adapted to be minister in quiet, regular times, he had neither the daring, nor the insight,

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nor the commanding power, that was needed to guide the bark of state through the fierce storms of the Revolution. She fully shared the enthusiasm with which the opening of the States General was received. She mentions that on that occasion she was watching the procession from a window with Madame de Montmorin, wife of the Minister of Foreign Affairs, and that as she expressed her delight, her companion said: "You are wrong in rejoicing; great calamities will follow from this to France and to us." The words were truly prophetic. Madame de Montmorin perished on the scaffold with one of her sons; the other was drowned. Her husband was murdered in prison during the massacre of the second of September. Her eldest daughter died in the prison hospital. Her youngest daughter withered away when not yet thirty, broken-hearted by the calamities of her family.

Madame de Staël, too, soon discovered that no millennium was at hand. She was an eye witness of the terrible scenes of the fifth and sixth of October, when Versailles was invaded by a half-famished mob, when the guards were cut down and beheaded, and when the royal family were brought captive to Paris. She clearly saw that all power was passing from the government to the clubs, and that the mob violence which reigned was either instigated or deliberately connived at by the very men whose first duty was to repress it. "These gentlemen," she once said, "are like the rainbow; they always appear when the storm is over." Under her influence the Swedish embassy became the chief center in which the "Constitutional Party" was organized. Narbonne and Talleyrand were then completely devoted to her. Segur, Choiseul, the Prince de Broglie, and other members of the party were constantly at her house; and at what were called her "coalition dinners" she brought them in contact with leading men of other groups. She had a conspicuous talent for inspiring, encouraging, conciliating, and organizing a party; and for some months she exercised a very real political influence. Her aim was a constitutional monarchy of the English type; but she came gradually to believe that a republic, or at least a change of sovereigns, had become inevitable. She never wavered in her devotion to liberty, order, and justice; but on minor questions she always exhibited a spirit of compromise which was very rare

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in her age and in her country. "The true line of conduct in politics," she once said, "is always to be ready to rally to the least obnoxious party among your adversaries, even though it is far from representing exactly your own point of view." At the end of 1791 she had a moment of delicious triumph, when her favorite Narbonne became minister of war. Marie Antoinette, who disliked her, clearly recognized her hand. "Count Louis de Narbonne," she wrote to Fersen, "has been minister of war since yesterday. What a glory for Madame de Staël, and what a pleasure for her to have the whole army at her disposal!"

The triumphs of Madame de Staël, however, were very fleeting. Her father had fallen irretrievably, and in September, 1790, he passed almost unnoticed out of the country where, but little more than a year before, he had been welcomed with such enthusiasm. The ministry of Narbonne, to which she had attached her most ardent hopes, ended in four months, and before its conclusion her husband, whose views on French politics had been for some time diverging from those of his sovereign, was recalled. He was not, however, replaced, and Madame de Staël remained alone in Paris till September, 1792. Her position there was an extremely dangerous one. She had long been an object of incessant abuse in the royalist press, and now the red waves of Jacobinism were rising higher and higher, surging fiercely around those to whom she was most attached. Nothing in her life is so admirable as the courage with which, in this period of the Revolution, she devoted herself to saving the lives of the proscribed. Her purse was always open, and she often risked not only her fortune, but her life. The royal family had always disliked her; but she was filled with horror at the fate that was impending over them, and she herself organized a plan for their escape, in which, if it had been accepted, she would have borne a leading part, at the imminent risk of her head; and she afterward wrote an earnest and eloquent pamphlet in the hope of saving the life of the Queen. Sometimes by interceding with those in power, sometimes by concealing fugitives in the Swedish embassy, very often by large and timely gifts of money, she saved many. Her own life, at the time of the September massacre, was in extreme danger, and she at last fled to Switzerland. Coppet then became a

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great center of refugees, and many of them owed their lives to her help. Among others, Narbonne appears to have owed his escape, in part at least, to her assistance, and she chiefly managed the escape of his daughter. She was for a long time completely under his charm; but he is said to have been irritated by her often tactless impetuosity, and especially by the manner in which public opinion regarded him as her creature, and he seems to have treated her with much ingratitude. There was no violent breach, but there was a separation, and a wound which was long and bitterly felt. Many years later, Madame de Staël, when praising the Prince de Ligne, said of him: "He had the manners of Monsieur de Narbonne—and a heart."

A short visit to England, in 1793, the death of her mother in May, 1794, and the publication of her first purely political work, "Reflections on Peace. Addressed to Mr. Pitt and to the French," were the chief events of her life during the next few months. In this work she dwelt with much force on the absurdity of supposing that any foreign intervention could restore what the Revolution had destroyed, and she predicted that the inevitable effect of the prolongation or extension of the war would be to strengthen that militant Jacobinism which was now the greatest danger to Europe. In this year, too, she first came in contact with Benjamin Constant, and her acquaintance soon developed into a connection which gave her a new and powerful instrument for acting on French politics, but which also brought with it much suffering, many reproaches, and long and lasting discredit. In May, 1795, we find her again in Paris, with her husband, who had once more been sent on a mission to France; again eagerly engaged in French politics; again largely occupied in defending the interests of her proscribed friends. Among others, Talleyrand appears to have owed his recall to her influence. As usual, she excited many antipathies, she was denounced in the convention by Legendre for her political intrigues and especially for her efforts in favor of the emigrants, and she was obliged to leave Paris for about eighteen months. Her pen was at this time very active, and to this period belong her "Essay on Novels" and her "Treatise on the Passions."

The star of Bonaparte was now rapidly rising, and it pro-

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foundly affected the last years of her life. The pages in her "Considerations on the French Revolution" in which she describes her first interview with him, after the peace of Campo Formio, are among the most graphic she ever wrote, though something of the shadow of the picture was, no doubt, drawn from later experience and antipathy. She was at first dazzled; she was at all times profoundly impressed by his genius; but she soon came to perceive that his nature was wholly unlike that of other men. She had seen, she said, men worthy of all respect, and she had seen men noted for their ferocity; but the impression produced on her by Bonaparte was generically different from that produced by either of these classes. She found that such epithets as "good," "violent," "gentle," and "cruel" could not be applied to him in their ordinary senses. He was in truth a being who stood self-centered, and apart from the sympathies, passions, and enthusiasms of his kind, habitually regarding men, not as fellow creatures, but as mere counters in a game; a will of colossal strength; an intellect of clear, cold, transcendent power, solely governed by the imperturbable calculation of the strictest egotism, and never drawn aside by love or hatred, by pity or religion, or by attachment to any cause. It was impossible, she found, to exaggerate his contempt for human nature and his disbelief in the reality of human virtue. A perfectly honest man was the only kind of man he never could understand. Such a man perplexed and baffled his calculations, acting on them as the sign of the cross acts on the machinations of a demon. The superiority which so clearly shone in his conversation was not that of a mind cultivated by study and by society; it was the supreme insight into the circumstances of life possessed by a mighty hunter of men. There was something in him, she said, like a cold and trenchant sword, which at the same moment could wound and chill.

Such was the estimate she formed of the man who, nearly at the same time, was presented by Talleyrand to the Directory as "the pacificator of Europe," as a hero "who despised luxury and pomp—the wretched ambition of common souls—and who loved the poems of Ossian, especially because they detach men from the earth"! That two such different natures should come into collision was very natural. Bonaparte always hated superior

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women, and especially women who meddled in politics. He well knew that the circle of Madame de Staël was the center of ideas about freedom and constitutional government irreconcilably opposed to his ambition, and that the world of good society and good taste, of independent thought and independent characters, in which she played so great a part, remained unsubdued and undazzled by his power. Benjamin Constant had been placed in "the Tribunate," and in the beginning of 1800 he made a speech there indicating a desire to establish in that body an opposition like the opposition in the English Parliament. Bonaparte was furious at his attitude, and at once ascribed it to the inspiration of Madame de Staël. A year later the last work of her father appeared, and it contained an earnest warning against growing despotism in France and a strong argument for the establishment of a republican constitution. The sayings of Madame de Staël that were repeated from lip to lip, and the atmosphere of thought that grew up around her, irritated and disquieted Bonaparte. "She is moving the minds of men," he said, "in a direction that does not suit me." "They pretend that she does not speak of politics or of me, but somehow it always happens that those who have been with her become less attached to me." Soon her salon was emptied by an emphatic intimation that those who entered it would incur the displeasure of the First Consul. Official scribes were busily employed in depreciating her, and these measures were speedily followed by the long exile which darkened the later years of her life.

It is impossible for me in this article to relate, even in outline, the story of this exile, and of her travels in England, Italy, Austria, Russia, and, above all, in Germany. Madame de Staël has herself described this period of her life in her "Ten Years of Exile," and all the details have been collected by Lady Blennerhassett with an industry that leaves nothing to be desired. A woman of a more heroic type would have borne with less repining an exclusion from Paris life which was mitigated by wealth, and fame, and abundant occupation, and a family that adored her, and troops of admiring friends. A woman who was less essentially noble would have assuredly accepted the overtures that were more than once made to her, and would have pur-

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chased her peace with Napoleon by burning a few grains of literary incense on his altar. But though, in a life of more than common vicissitude and temptation, Madame de Staël was betrayed into great weaknesses and into some serious faults, she never lost her sense of the dignity and integrity of literature, and her works are singularly free from unworthy flattery as well as from unworthy resentments and jealousies. The homage which Napoleon desired was never received, and in her great work on Italy and her still greater one on Germany there was no trace of his victories, influence, or animosities. "In France," he once said, "there is a small literature and a great literature; the small literature is on my side, but the great literature is not for me."

The disfavor which thrust Madame de Staël out of political influence, and then drove her into exile, proved a blessing in disguise, for it turned her mind decisively from political intrigues to those forms of literature in which she was most fitted to excel. Her treatise on "Literature," which was published in 1800, was conceived upon a scale too large for her own knowledge, and though she herself attributed to it the great and general favor that she enjoyed for a time in Paris society, it has not taken an enduring place in French literature. "Delphine," the most personal, and also the most censured, of her novels, had a still wider success, and made a deeper and more lasting impression. It appeared in 1802, and it was followed by a long interval, during which she appears to have published nothing except a short but admirable notice of her father, who died in the Spring of 1804; but in 1807 "Corinne" burst upon the world, and at once obtained a European fame equaled by that of no French novel since "*La Nouvelle Héloïse.*" In this great work of imagination she embodied, in a highly poetic form, the impressions she had derived from her journeys in England and Italy, and its immense and instantaneous success placed her on the very pinnacle of fame. It is worthy of notice that a bitter attack upon "Corinne" appeared in "*Le Moniteur*," based chiefly upon the fact that its hero was an Englishman; and there is good reason to believe that this attack was from the pen of Napoleon himself.

A book of larger scope and of more serious influence soon followed. Germany at this time presented the singular spectacle

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of a people who had been reduced to the lowest depths of political depression, but who, at the same time, could boast of a contemporary literature that was the first in the world. In France a translation of "Werther" had attained great popularity; some of the plays of Schiller, the idylls of Gessner, and a few other German works were well known; but scarcely any Frenchman had a conception of the magnitude and importance of the intellectual activity which was growing up beyond the Rhine, or of the vast place which Goethe, Schiller, and Kant were destined to take in European thought. It was one of the chief pleasures and occupations of Madame de Staël, during her exile, to explore this almost unknown field. It would scarcely have been thought that she was well fitted for the task. She learned the language late in life, and her characteristically French mind seemed very little in harmony with either the strength or the weakness of the Teutonic intellect. There was nothing very profound, or very subtle, or very poetical in her nature, and she had all that instinctive dislike to the vague, the disproportioned, the exaggerated, and the ambiguous, to fantastic and far-fetched conjecture, and to imposing edifices of speculation based upon scanty or shadowy materials, that pre-eminently distinguishes the best French thought. Very wisely, however, she placed herself in direct communication with the great writers of Germany, and a wholly new world of thought and sentiment gradually opened upon her mind. It is not too much to say that it was her pen that first revealed to the Latin world the intellectual greatness of Germany. In England Coleridge had already labored in the same field, and his admirable translation of "Wallenstein" had appeared as early as 1800; but it had been completely still-born, and in England also it was reserved for the great Frenchwoman to give the first considerable impulse to the study of German literature. For the history, the merits, and the defects of her work on Germany, I cannot do better than to refer to the admirable pages which Lady Blennerhassett has devoted to the subject. With the doubtful exception of "*Le Génie du Christianisme*," it was by far the most important French work which appeared during the reign of Napoleon. It is a characteristic fact that the whole of the first edition was confiscated by order of his government.

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Happily the manuscript was saved, and about three years later it was printed in England.

After some discreditable scenes, on which a recently-published correspondence has thrown a painful though somewhat doubtful light, the connection of Madame de Staël with Benjamin Constant was broken. The two continued occasionally to correspond, and as late as 1815 we find her lending him a large sum of money; but their relations were never again what they had been, and on the side of Constant there appears to have been a large amount of positive malevolence. "O Benjamin," she wrote to him in one of her later letters, "you have destroyed my life! For ten years not a day has passed that my heart has not suffered for you—and yet I loved you so much!" A strong affection, such as she had not found in her marriage with the Baron de Staël, was an imperious necessity of her existence, and after her breach with Constant she soon found an object in a young officer from Geneva named Rocca, who had returned to his native town badly wounded after brilliant service in Spain. When they first met, in 1810, Madame de Staël was forty-four and Rocca about twenty-three; but a genuine and honorable affection seems to have grown up on both sides, and in the following year they were married. Madame de Staël, however, either clinging to her name or dreading the ridicule of such a strangely-assorted marriage, insisted upon its concealment, and Rocca generally passed in society as her lover. A child was born in 1812, but it was only after the death of Madame de Staël that the legitimacy of the connection was established. It proved much more productive of happiness than might have been expected, and greatly brightened her closing years. Nearly at the same time an important change passed over her religious views, and the vague deism of her youth deepened into a positive, definite, and earnest Christianity, but without mysticism and without intolerance. Some beautiful lines that are cited by Lady Blennerhassett very faithfully express the spirit of her belief:

"*Il faut avoir soin, si l'on peut, que le déclin de cette vie soit la jeunesse de l'autre. Se désinteresser de soi, sans cesser de s'interesser aux autres, met quelque chose de divin dans l'âme.*"

She lived to see the downfall of perhaps the only man she

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really hated, his return from Elba, his final defeat at Waterloo, and the restoration of the Bourbons. But, though she detested Napoleon and his system, these things gave her no pleasure. The spectacle of an invaded and a dismembered France aroused her strongest feelings of patriotism, and she loved liberty too truly and too ardently to rejoice in the influences that triumphed in 1815. Her last years were chiefly spent in the composition of her "Considerations on the French Revolution," in which she sums up the convictions of her life. It is one of her most valuable and most lasting books. The disproportioned prominence which is naturally assigned in it to Necker, and the manifest personal element in her antipathy to Napoleon, impair its weight, indeed, as a history; but few writers have criticised with more justice the successive stages of the Revolution, and few books of its generation are so rich in political wisdom. The concluding chapters, in which, in a strain of noble eloquence, she pleads the cause of moderate and constitutional freedom, show how steadily and how strongly, in an age of many disenchantments, she clung to the belief of her youth.

The "Considerations on the French Revolution" had a vast and an immediate success, and in a few days 60,000 copies were sold. Madame de Staël, however, did not live to witness her triumph. In February, 1817, she was struck down by a paralytic illness, and on July 14, after a long period of complete prostration, she passed away tranquilly in her sleep. It was a peaceful ending to an agitated and checkered career. She had enjoyed much and suffered much. She had committed grave faults, and had met with her full share of disappointment and ingratitude; but few women have left such an enduring monument behind them, or have touched human life on so many sides and with so many sympathies.

W. E. H. Lecky.

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FORMATIVE INFLUENCES.

If we accept modern theories of heredity to their fullest extent, we must admit that the influences which form the man may begin to act generations before his birth; but I know nothing of my ancestry that would fully explain the early bent of my mind, or the direction which the activities of my life have taken. Both my parents were of New England descent so pure that I have to go back four or five generations to discover an ancestor of European birth; but I cannot find that any of my progenitors within the last two centuries was a laureate of Harvard or of any other college, or acted a prominent part in the history of his country. The first Simon Newcomb, from whom I am a descendant in the sixth generation, was early in the last century a Connecticut farmer or fisherman, and my grandfather, the fourth of the name, is reached before anything appears to suggest the seeds of the intellectual life. He was a stone-cutter by trade; but he owned a copy of the "Elements" of Euclid, and tradition credits him with unusual learning, and with having, at some time, taught school. My maternal grandfather was of higher social position—a "squire," a Puritan of the strictest sect, and a pillar of the Baptist Church.

My birthplace was in the northern part of Nova Scotia, and the surroundings of my childhood and youth have deeply tinged the economic views of my later years. People lived there much as the settlers of New England lived before the Revolution. The children of all but the rich went barefoot in Summer, and, except the rare and costly Sunday suit, nearly every family had to make its own clothes. The men and boys tilled the ground, or cut and sawed lumber for exportation to more favored climes; the women and girls sheared the sheep, carded the wool, spun the yarn, wove the homespun cloth, and made the clothes. My father followed the occupation—rather precarious in such a locality—of teaching school. In his ideas of

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education he was a disciple of William Cobbett—a circumstance which did not tend to give him popularity or to promote his success. The learning of arithmetic and grammar by the glib repetition of rules was a system that he held in contempt, and in consequence parents were seldom fully satisfied with the results of his teaching. It thus happened that my early years were passed in a number of places, in all of which, however, the economic and social conditions were much the same.

One result of my father's occupation was that I breathed, in early childhood, an atmosphere which had at least the scent of learning. The spelling book was more familiar than the plow, and the idea that there was a correct way of using language was acquired at as early an age as if we had lived in cultivated society. When I was five years old, my father used in Winter to draw me to school on a hand sled, and at six I had developed a strong taste for "doing sums." Six months later I was well advanced in arithmetic, and then an incident occurred that profoundly affected my father's policy in conducting my education. I have no distinct recollection of it, but was accustomed to hear it alluded to as an attack of mental abstraction of a singular kind. Many years afterward my father wrote:

"You had lost all relish for study, reading, play, or talk, and sat most of the day flat on the floor or hearth, or in a corner. When sent on an errand, you would half the time forget what you went for. You would frequently jump up from the corner and ask some curious question. . . . From the time you were taken down until you commenced recovery, about a month elapsed. . . . After a few weeks I began to examine you in figures, and found you had forgotten nearly all you had ever learned."

This supposed result of overstudy made my father extremely cautious in allowing me the use of books. Of regular schooling —sitting down to prescribed tasks, reciting lessons, and passing examinations—it might almost be said that I had none. Partly from necessity, partly from a fear of overstudy and a desire to strengthen my bodily constitution, about half of my time from the age of eight to that of sixteen was spent in working on farms. The more intelligent of the farmers generally had two or three books, which I had occasional opportunities to read by the light of the blazing fire in Winter evenings. During the inter-

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vals at home I had better opportunities for reading, and when I was twelve years old my father started me in algebra. His sole knowledge of the subject was derived from Hammond's "Algebra," one of the ancestral volumes already alluded to—a ridiculous work from our present point of view, and even then nearly a century old. If I remember the author's introduction aright, he had written the book for some of his friends, who could not grapple with the ordinary treatises on the subject.

Under such conditions as I have described, important epochs in the moral and intellectual development of a boy may be marked by circumstances which, in spheres now familiar to us, would have been quite unimportant. Three such epochs are prominent in my memory. At the age of five years I was guilty of a fault the precise nature of which has escaped me, but I think it was the telling of an untruth. My mother reasoned with me somewhat as Paul did with Felix, and awoke, for the first time, the faculty of conscience. From that time forward my discernment of right and wrong was keen. I have always regarded this little incident as possibly containing a hint of the direction in which we should look for the development of the moral sense in infancy. Is there a particular epoch in each life, after the age of entire thoughtlessness, and before that when mental habits have crystallized, when the iron is hot, so to speak, and when the character can be hammered into any required shape? I merely suggest this question without attempting to answer it.

Up to the age of twelve the laws of nature remained a mystery to me. About that time I remember once asking my father what light was, and why we could not see in the dark. He tried to give me an idea of something he had read or heard on the subject, but the question was one which nothing in our reading could help to answer. He could tell about gravitation, the names and order of the planets, history, and navigation; but I doubt if a work on natural philosophy had ever fallen within his reach. But one day after school I saw, lying on the desk of one of the scholars, an unusual-looking book, which proved to be Mrs. Marcet's "Conversations on Natural Philosophy." I devoured it in a very few days, by stealthily making my way into the school house after hours. Never since have I tasted

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such intellectual pleasure as was offered by this first insight into the mysteries of nature.

One of my grandfather's books was the "Elements" of Euclid. It stood on the shelf with Hammond's "Algebra," and with Moore's "Navigator"—the precursor of our familiar Bowditch—but until I had passed the age of thirteen I never noticed that there was anything of interest in it. How I could have lived so long without trying to fathom the mystery of its queer diagrams, I cannot now explain. I was led to a more careful examination by a reference in Hammond's "Algebra" to the celebrated forty-seventh proposition of the first book, and was equally surprised and delighted to find a course of reasoning from self-evident principles. Very soon I found something not self-evident taken for granted, but I soon discovered that certain numbers in the margin referred to a previous proof. Thus I went back, step by step, to the beginning of the book. It was my first idea of a mathematical demonstration, and I was so delighted with the new world of thought that, walking out with a younger brother, I imparted the new idea to him, demonstrating the principal theorems leading to the Pythagorean proposition by diagrams penciled on the ends of the logs in a pile of wood. Algebra I had found hard, but here was something so easy that a child might understand it. When I reached the fifth book, however—that on proportions—the prolixity of the propositions and demonstrations tired me completely; and as I was reading solely for love, I did not follow the subject much longer.

Notwithstanding that I had health, and a liking for every kind of activity, physical and mental, my early life was a period that I would not live over again. The feeling that I was unfit for the sphere to which fate had condemned me, oppressed me from a very early age. I was looked upon by the farming population as a prodigy of learning, and was occasionally complimented by a preacher. This was pleasant; but when, as sometimes happened, one person said to another, "Look at that boy; he has more larnin' than any grown man miles 'round," I felt as if he were pointing out some hideous deformity in my constitution. In my own eyes I was a *lusus naturæ*, born with a taste for things which were of no use, and without any of

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the powers necessary to gain a respectable living. I had, indeed, acquired an idea of another kind of world— world of light, where lived men that wrote books, and people who knew men that wrote books; and where boys went to college instead of having to drive oxen. But I never for a moment suspected that people in that world cared for people outside of it, or would take any interest in a boy because he was fond of knowledge. My father had, from time to time, inquired into the possibility of getting me prepared for college, but was always met with a blank statement of such impossibilities as six years at school, spent in the study of Latin and Greek. And thus it happened that I attained the age of twenty-one without meeting a college professor, or any one else who could give me help or advice in the pursuit of my studies beyond the point where parental guidance ceased.

Meanwhile my father had brought me to Maryland, where, before reaching nineteen, I was engaged in teaching, in a region far superior, in respect to the good things of life, to that in which I had been born, but nearly as far removed from contact with the intellectual world. Here I read in the "National Intelligencer" an elaborate attempt to refute the Copernican system of astronomy, and was quite surprised, after waiting some days or weeks, to find that no one ventured to point out the writer's fallacies. Fearing that sound knowledge was in danger, I at length ventured on a reply, which, in due time, appeared in the "Intelligencer" over my own name. This was about May or June, 1855. It provoked two pleasing attentions—a book from Col. J. J. Abert, of the topographical engineers, and a letter and a pamphlet from Professor J. Lawrence Smith. I was not yet in the world of light, but I felt like one tapping on its walls and getting answering taps from within.

A year later I found, for the first time, an opportunity to make the personal acquaintance of a denizen of that bright and happy world. I had made several visits to Washington, gained access to the Smithsonian library, and looked with awe upon the ponderous tomes of the "*Mécanique Céleste.*" At length I ventured to call on Professor Joseph Henry, who, needless to say, encouraged and promoted my advancement in a way which will make his name ever remembered by me and my children. He made

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me acquainted with Mr. J. E. Hilgard, of the Coast Survey, in whom I found another charming personality. Fate now seemed to make amends for her former neglect, not only by leading me to such men as she did, but by guiding them in building for me better, perhaps, than they knew. When, in the course of time, they found an opening for me in the "Nautical Almanac" office, then in Cambridge, it was simply because here was something congenial for me to do, and without a thought of the benefits that I might derive from Harvard University.

I date the fruition of my hopes, my actual citizenship of the world of my childish dreams and youthful aspirations, from one frosty morning in January, 1857, when I took my seat before a blazing fire in the "Nautical Almanac" office, between Professor Winlock, the superintendent, and Mr. John D. Runkle, the senior assistant. I began to talk of the "*Mécanique Céleste*" and of my nearly unavailing attempts to master it. When I said something of the translator, Runkle called him "the Captain." Such familiarity with the memory of Nathaniel Bowditch, LL.D., Member of the Royal Societies of London, Edinburgh, and Dublin, quite shocked me. I looked with awe upon the assistants who came and went, supposing that each of them had the "*Mécanique Céleste*" at his fingers' ends. One of the unwelcome lessons that I had to learn was that this was not the case, and that all my duties could be performed without knowing anything of the abstruse mathematics by which the mysteries of the celestial motions were unfolded. Yet among my associates were men of ability, and the roll of those who may be said to have graduated from the office includes a number of distinguished names. Runkle was the founder of the "Mathematical Monthly," in the preparation of which several of us co-operated. Although it lasted only three years, it had an excellent effect in stirring up an interest in the subject among students and professors in every part of the country. The interest of the assistants was not confined to mathematics and astronomy. Had Chauncey Wright lived, he might have stood high among the philosophers of the world; his "Philosophical Discussions" contain some of the profoundest examinations of the Darwinian theory that have yet appeared. I shall always remember him as the only man, so

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far as I know, whose theories I ever changed by argument. After much wrestling on the subject of the freedom of the will, he was led to accept the logic of Jonathan Edwards and John Stuart Mill.

Was all this the beginning or the end of formative influences? The former, I hope, because in that case it is allowable for me in this paper to recall my indebtedness to the men who welcomed my entrance into their world, and who guided my yet almost childish footsteps. I had to learn what that world was, and could not have fallen in with better teachers. One object of my ambition had been to study mathematics in the Lawrence Scientific School under Professor Peirce, and I soon found that there was no obstacle in the way of my doing so while continuing my office work. Among those with whom my entry into the school made me acquainted, were E. N. Horsford, the dean, and Charles W. Eliot, then tutor in mathematics. My reception by each of these men was so pleasant that I have never forgotten it, and it was instructive and stimulating at the same time. I learned that the denizens of the world of light were ready to greet a new-comer with a warmer sentiment than I had supposed, even if his appearance showed that he had come from a different sphere; and of course I felt a yet stronger incentive to show that no mistake had been made in admitting me to the privileges that I now enjoyed.

The man who differed most from his fancied picture was Professor Peirce. Through one of those psychological fancies to which Mr. Francis Galton has called attention, I had associated eminence as a thinker with a smoothly-shaven face and a demeanor of studied reserve and dignity. With my introduction to the actual mathematician, "bearded like the pard," simple and unreserved as a farmer, and as cordial as if he had never known what dignity was, a new lesson in human nature was begun. The course of mathematics on which I entered under his nominal direction was hampered by no prescriptions whatever. The student was advised to attend the mathematical lectures that the professor delivered to the senior undergraduates, and to read La Place; outside of that he did what he pleased till he came up for final examination for a degree. The lectures

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were not, in themselves, well adapted to one who had yet to learn the spirit of real mathematics. Peirce flew where I had to climb, and in whatever direction we went, a point was soon reached where the pupil had to drop behind. But what he said was always suggestive, and the effort to find out what he meant was improving, whether successful or not.

The leading scientific men at Harvard were Agassiz, Peirce, and Gould, each not only pre-eminent in his department, but in a certain sense a pioneer. Peirce was the first American to learn modern mathematics, and to teach his countrymen that what they called by that name hardly formed even the beginnings of the subject; and the same may be said of Gould in astronomy. The latter is one to whose encouraging words and efficient help I must ever feel most deeply indebted; indeed, the way in which the man and the astronomer were combined in his person powerfully influenced the direction of my activities, and his "Astronomical Journal" was the medium through which my earliest efforts reached publicity. Another teacher by example was Commander Charles Henry Davis, who resumed his former position as superintendent of the "Nautical Almanac" the year after I became connected with it. He united all the dash of the old-fashioned naval leader with a kindly courtesy toward men and women of every grade which could not be exceeded. The letter to the Mayor of Memphis in which, some years later, he called for the surrender of that city, after a day of fighting, was quite characteristic. "Sir: I have the honor to request that you will surrender. . . . I am, Mr. Mayor, with high respect, your most obedient servant." Had I been a son, he could not have promoted my work more cordially than he did, or given me better opportunities for advancement.

Agassiz was one of three men who impressed me by a certain artless dignity which made their presence both instructive and charming, as if they had never known what breeding was, because they had been born bred. The other two were Professor Henry and Chief Justice Waite, each of whom left a gap in the intellectual society of Washington which one can never feel to be filled.

High on the list of those to whom I was indebted at that criti-

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cal period, must be written the name of a Lycidas whose untimely end, a few years later, I have never ceased to deplore—William P. G. Bartlett. Somewhat my junior in years, and then a senior in the college, he supplied one of my greatest needs, that of a companion who had been bred in the world which I had but entered. He was a member of a charming and cultured family, in which I soon became a familiar visitor. His virility of judgment, uncompromising integrity, and devotion to science, were but feebly indicated in his class motto: "I love mathematics and hate humbug." He was a nephew of the late Nestor of the Boston bar, who was naturally interested in the welfare of so gifted a kinsman. "I had a long talk with my uncle Sidney last evening," he once said to me. "He is trying to persuade me to study law, and says that wealth and a high position in the esteem of the community at large are better worth striving for than mere knowledge. But I told him that I would rather stand high in the esteem of a dozen such men as Cayley, Sylvester, and Peirce, than in that of all the ordinary people in the world."

Altogether, the accidents by which, at a critical period, I came under the influence of such men as I have described, seem nearly as noteworthy as those which so long kept me from them. Of the littleness and selfishness of the great world I have had as little cause to complain personally as one well could have, yet one has to learn about them. An excellent preparation for this inevitable experience is a few years of life in a world which says: "What you learn, that shall you know; what you make yourself, that shall you be; what you earn, that shall you enjoy; what you are fit for, that shall you do."

SIMON NEWCOMB.

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THE METHODS OF MIND-READERS.

THE credulity of the American people has often been imposed upon. The Locke "Moon Hoax," the Cardiff giant, Katie King, Ann O'Delia Diss Debar, and Madame Blavatsky have been followed by the modern "mind-reader," who claims for himself powers of divination excelling anything that has been known since the time of Christ. Mind-reading, in the sense in which the word is used by those who pretend to possess the alleged power, may be defined as the transference of a thought —that is, a mental concept, or an idea—from the mind of one person to the mind of another, without the use of the known mediums of communication, which consist of the nerves of general sensation and those of special sense.

Mind-readers claim that this feat is possible. In opposition to such claims, I submit that profane history contains no trustworthy account of its accomplishment. It never will be brought about so long as man remains constituted as he is at present. It is opposed to the principles of evolution, and to all known facts of physiology. Notwithstanding all that may be adduced to the contrary, many believe that mind-reading is one of the possibilities, even if it is not one of the actualities, of life. But the belief, in every instance, is founded either on insufficient evidence, or on faulty observation, or on a disposition to mistake the marvelous for the miraculous. Many accounts of alleged mind-reading are purely fictitious. Others are exaggerations of trivial incidents or misinterpretations of observed phenomena. Others, still, are accounts of muscle-reading. Those cases that do not belong to the classes named are accomplished by trickery.

Mind-reading is not of recent origin. In 1847 a lad named Alexis Didier, living in Paris, attracted attention by reason of the remarkable powers that he was supposed to possess. On one occasion Didier gave a *séance* at which were present Lord

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Normanby, Lord Fitzgerald, Didier's friend Marcillet, and several others. Didier was asked by Normanby to describe the latter's country residence in England. After some reflection the boy gave a description of the grounds, the house, and its furnishings. Normanby then showed Didier a box, and asked him to describe its contents. "It contains," said Didier, "a bracelet with a portrait. The likeness is one of Queen Victoria." Normanby took a book, and, when he had stated the number of a page, Didier immediately repeated a sentence in it, although Normanby did not let the book go out of his hands. Many other instances of Didier's alleged powers are related. It is scarcely necessary to say, by way of explanation, that the lad and his "friend Marcillet" were very clever tricksters. Such *séances* at the houses of ambassadors are always given by previous appointment, thus allowing ample time to gain the knowledge necessary to make a display of clairvoyant power. The trick with the book I have repeated many times. That with the box and the bracelet is familiar to every prestidigitateur. The account is reproduced here for the purpose of indicating to what length credulity may go; for the story of Didier has recently been republished in several newspapers, accompanied by serious editorial comment.

Of like character is the story told of Viélet, the servant of the Marquis de Puységur, who is said to have developed remarkable powers as a mind-reader. In 1784 the Marquis wrote:

"After I have magnetized Viélet I do not speak to him; I think before him, and he hears and answers me. If any one enters the room, he sees him if I wish it. He speaks to the stranger and tells him only what I wish him to say. If he is about to say more than he ought, I check (in my mind) his ideas, his phrases (often in the middle of a word), and I completely change the direction of his thoughts."

The Marquis de Puységur was a great romancer, and Viélet was a remarkably valuable servant. Out of some trivial circumstance—in which, most likely, the eye was the exponent of thought—the Marquis concocted a story that would have done credit to the famous Baron himself. It is not worth while seriously to discuss the probability or improbability of this tale. It is simply preposterous, and has no merit except its extreme

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age. In the same category may be placed the tales of alleged thought-transmission that form part of the traditions of the middle ages; such as St. Augustine's account of a certain St. Albicerius, who professed to be able to read the thoughts of others, and such as the story told by Father Surin, who claimed similar powers for the "possessed" nuns of Loudun. It is well known upon what insufficient evidence and unreliable testimony the stories of the alleged miracles of those days are based.

But in extending our inquiries to occurrences of recent date, we come upon accounts of alleged mind-reading that are far more trustworthy and that merit investigation. Notable among these is the one given by the celebrated English "thought-reader," Mr. Stuart Cumberland, of some of his own feats, the most remarkable of which he describes in the following language:

"My first attempt at writing a sentence in a language of which I knew absolutely nothing, was made before the Khédive of Egypt. His Highness clapped his hands, and an attendant obeyed the summons. Paper and pencil were brought, and a sheet was gummed upon one of the gilded doors. The Khédive thereupon thought of a word, and, without any sort of hesitation, I wrote the word "*Abbas*" (the name of his son) in Arabic characters. I did not at the time know a single letter of the Arabic alphabet."

To the reader it will appear that this account of Mr. Cumberland's experience, which may be accepted as correct, establishes not only the possibility, but even the actual performance, of mind-reading. But such a conclusion is incorrect, for, as Mr. Cumberland himself admits, it was merely an example of muscle-reading. True, it was very skillfully done, but still it was only muscle-reading. I will ask the reader to accept this statement for the present, since the full explanation of the manner of accomplishing such results will appear in the course of this article.

Among the many accounts of so-called mind-reading, none seems more reliable than that related by Björnström as occurring in the experience of Beaunis and Liébault, of Nancy. The subject was a young man who is described as "a good somnambulist," upon whom Liébault had been accustomed to experiment by hypnotic suggestion. On the occasion mentioned, the young man was at Liébault's house, accompanied by a young lady—his cousin. The account says:

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"Liébault, who hypnotized the young man, said to him: 'Upon awaking, you will perform the action of which those present are thinking.' Beaunis then wrote with a lead pencil upon a piece of paper: 'Embrace his cousin.' He showed the paper to Liébault and to the others, asking them to read the writing without moving their lips. When the subject came out from the hypnotic state they were to think intently only of that which he was to do, without telling him of it, and without aiding him by any sign. Shortly after coming from the somnambulistic state, the young man began to laugh, and hid his face in his hands. After much urging he was induced to own that the thing required of him was to embrace his cousin." *

Here, also, is an instance that would seem to prove the possibility of thought-transference. But the conclusion is too hasty, for the phenomena may be explained on other grounds.

If there were any conditions under which thought-transference might occur, they would seem to be supplied by hypnotism. In the hypnotic state the mind of one person exerts over the mind of another an influence that surpasses anything with which we are acquainted under ordinary conditions. But the impossible cannot be accomplished, even by the aid of hypnotism. In this instance the subject of the experiment was very impressionable. He is described as being "a good somnambulist." No such subject, while in the hypnotic state, would have difficulty in divining what was required of him. It must be borne in mind that in the hypnotic state one's senses are intensely acute. That which ordinarily escapes the attention of the most careful observer is quickly detected by the sharpened senses of the hypnotist. It is impossible to make a motion that he does not see and interpret accurately. Thus, by virtue of his sharpened faculties, the hypnotist will sometimes divine, though he cannot "read," the thought of another. On this subject Bernheim says:

"It is well to add that many somnambulists possess extremely acute perception. The slightest indication guides them. Knowing that they are expected to carry out the hypnotizer's thought, they make an effort to divine it. If the experiments have been repeated many times with the same subject, the latter readily guesses that he should transfer such and such phenomena; and even when nothing is said before him, he can divine whether the transfer should occur or not, by the expectant attitude of the operator, or by some other indication." †

"In all degrees of hypnosis the subject hears and understands every-

* "Hypnotism," by Dr. Frederick Björnström, p. 72.

† "Suggestive Therapeutics," by H. Bernheim, p. 95.

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thing, even though he may appear inert and passive. Sometimes the senses are particularly sharp in this state of special concentration, as if all the nervous activity were accumulated in the organ whose attention is solicited. These subjects think that it is their duty to try to carry into effect the operator's thought, and they therefore use all their sensorial hyperacuteness, all their concentrated attention, in trying to guess what is wanted." *

Personal experience has taught me that this is true also of one who is under the influence of hasheesh—a state which very closely resembles that induced by hypnotism. While under the influence of this drug I have been able to detect that which would escape even the expectant attention of another. A slight motion, a quiver of the lip, a furtive glance, or a twitching of the finger, is as eloquent as a spoken word to the victim of hasheesh. He detects another's design as soon as it is conceived. As every student of Delsarte knows, one's mind cannot be occupied by an idea that is not reflected in the face or betrayed by some bodily motion. The hasheesh subject and the hypnotist are able to read these signs.

The incident related by Björnström is capable of ready explanation in the light of this knowledge. "The good somnambulist" divined what was expected of him. There sat his cousin—looking very conscious, no doubt—and there were Liébault, Beaunis, and "the others"; who or how many we are not informed. All were mentally directing him to embrace his cousin. Some of the party, in spite of effort at restraint, betrayed by furtive glances or by almost imperceptible smiles the nature of the task that had been assigned.

No account of alleged thought-transference ought to be accepted unless the experiment has been performed under test conditions. The test that ought to have been applied in this case was for the company to take in mind a thought that was foreign to the time and occasion, instead of one that would almost suggest itself to any acute observer. Had Liébault written, "Name the promoter of the Panama Canal," instead of "Embrace his cousin," failure would doubtless have resulted. Nor is the proposed test unreasonable. Words are the signs of ideas. If it is possible, by telepathy, to transfer from mind to mind one set of words, it ought to be as easy to transfer another

* Ibid., p. ix.

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set. "Name" should be transferred as readily as "embrace"; "canal" as quickly as "cousin." On the other hand, if the idea itself, and not the sign of the idea, is conveyed, the case is not altered. One simple idea should be conveyed as readily as another. If this is not conceded, a crucial test may be applied; the subject may be blindfolded. Being thus deprived of the use of the special sense—vision—by which, in such cases as this, the knowledge is actually acquired, he will fail. If further evidence should be called for to prove that thought-transference under hypnotism exists only in imagination, it would be sufficient to state that neither Charcot nor Bernheim—than whom no one is more experienced or higher in authority—believes in its possibility, and that neither has ever seen an example of it.

Of modern mind-readers, the late Washington Irving Bishop was best known in this country. Mr. Bishop was at the same time an expert muscle-reader and a clever trickster. His most famous feat, the one from which he gained the greatest notoriety and most *éclat*, was that of driving a team of horses, while he was ostensibly blindfolded, at break-neck speed by a circuitous route through crowded streets, and finding, at a distant point, an object, or a name in a book, previously selected by a committee. For the amusement of my friends I have several times performed this seemingly impossible feat, and in no instance have my methods been detected. Its successful accomplishment depends upon two things: the fact that the one who is apparently blindfolded can see distinctly all the time, and the fact that the members of his committee are betrayed into becoming his unwitting accomplices. The trick is performed in this manner: The mind-reader selects a number of persons—three, for instance—to act as his committee, or they may be selected for him by others. One member of the committee remains with the mind-reader; the other members, preferably in an open surrey, drive to a distant hotel, where they select a name in the register. They have been instructed to note also the day of the month on which the name was entered. They then return, driving by a circuitous route, but observing carefully every block passed and every corner turned. On their return to the room where the first member of the committee has carefully detained the mind-reader,

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they proceed to blindfold the latter; or rather he blindfolds himself, while permitting the committee to think that they take a leading part in the operation. He first produces a heavy hood, or bag, which he offers for the inspection of the committee. They scrutinize it, outside and in, pull it over their own heads, find themselves in utter darkness, and then return the hood, with no discoveries made. The mind-reader next places two balls of cotton, or folded kid gloves, against his eyes, and over these a folded handkerchief is bound about his head. He pulls the hood, the mouth of which comes to his shoulders, over all, and announces that he is ready for his task.

At this stage the mind-reader goes through a process that he calls "testing the committee." He informs them that a necessary condition of mind-reading is that all three members of the committee shall have exact knowledge of the route, the date, and the name. He gives plausible reasons why the communication should not be made by word of mouth, and instructs the two members of the committee who possess the knowledge to impart it to their fellow committeeman by making silent tracings with the finger against a blank wall. They obey; a committee always obeys a mind-reader. By means of this pantomime, the mind-reader gains, through his pervious hood, all the knowledge that he wishes, and the rest is easy. After some little by-play, he rushes with his committee to the surrey, takes the reins, drives at a furious rate over the selected route, enters the distant hotel, opens the register, finds the name, writes it on a slip of paper, and is greeted with ready applause.

The peculiar method of blindfolding must now be described. The handkerchief that is bound about the head exerts its greatest pressure upon the brows. By calling into action the muscles of the forehead, the handkerchief and the gloves are elevated, and vision is permitted beneath the lower margin. The hood is of peculiar construction, and is calculated to deceive the very elect. It is made of four thicknesses of black cloth, of which the second and third have apertures opposite the eyes. The outermost layer is always of some thin material. The innermost, which may be of heavy cheviot, has about the crown a circular seam, which comes in front of the eyes when the hood is on the

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head. At one place the seam is so constructed that by proper manipulation, known only to the mind-reader, it will open to the extent of half an inch. Through this aperture vision is easy, for nothing remains between the eye and the light but the thin outermost layer. When the hood is removed from the head the temporary aperture is closed, and it cannot be detected even by the closest scrutiny and the deftest manipulation. The mind-reader's feat of opening a combination lock is accomplished in a similar manner. The committee, while being "tested" in the committee room, reveals the combination to the mind-reader by the usual pantomime.

The methods of mind-readers may thus be shown to be those of the conjurer and the mountebank. Muscle-reading, on the other hand, is a subject worthy of serious investigation. It is the perception, by one person, of an extremely slight, involuntary action of the muscles of another, with whom he is in contact. The contact is usually made by taking the hand or wrist of the subject, though there are various other methods. Connection is made sometimes even by means of a copper wire. The muscular action that is felt by the principal is so slight as to be almost imperceptible. In fact, in many cases it is so delicate that, while the principal's own muscles are affected by it, it is not made known to consciousness. In order to attain success, a muscle-reader must have a good subject, that is, a person whose muscles will give the necessary indications. Not every one fulfills this condition. My experience is that, among young people, about one person in five possesses the requisite qualities; among adults, but one in ten or twenty. The required condition is that the subject shall exert no muscular self-control, but shall permit his muscles to act spontaneously. In muscle-reading, vision is not necessary. In fact, it is often an advantage to have the eyes blinded, for this permits greater concentration of the attention upon the main object—the perception of the indications given by the muscles of the subject.

The feat most commonly performed by muscle-readers is the finding of a hidden object. Any small object, such as a penknife or a pin, is hidden from sight in an adjoining room, in another part of the house, or even in a distant locality. The mus-

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cle-reader takes the hand of the subject, who must know the whereabouts of the hidden object. For a few moments he stands motionless; then he starts off in the right direction, and he seldom fails to find the object, even when it is hidden in an unusual place. "The dagger scene," as it is called, is but a modification of this. One person goes through the motions of stabbing another with a paper dagger, which is then hidden. The muscle-reader selects a subject, finds the dagger, and repeats the scene.

Another feat performed by muscle-readers is the reading of the number on a bank note, or of any arbitrary set of figures. This may be done in several ways. Usually the person who has the number in mind lightly clasps the hand of the muscle-reader, who asks him to think of the first figure of the series. The muscle-reader then slowly and audibly repeats the names of the nine digits, in order. At the instant when he speaks the name of the figure that the subject has in mind, he perceives a slight muscular tremor, or thrill, involuntarily made by the subject. This process is repeated with each figure until the entire number is obtained. A variation of this feat is performed with the letters of the alphabet, written on a blackboard or a chart. A person selects any word he pleases, and then, at the muscle-reader's request, thinks of the letters that compose it, one at a time. The muscle-reader lightly clasps the subject's hand, and then slowly points from letter to letter on the board. When he points to the letter of which the subject is thinking, intelligence is transmitted to him by the usual muscular tremor. The subject then thinks of the next letter, and so on till the whole word is found out. By a like method one pin, selected from among a hundred others scattered over the surface of a table, can be pointed out.

One other feat remains to be described. A muscle-reader who is exceedingly expert can reproduce on a blackboard a letter, a geometrical figure, the rude outlines of an animal, or an arbitrary character. The muscle-reader may be blindfolded or not. The subject keeps well in mind the character, after tracing it on the board and then erasing it; but it is of course unknown to the muscle-reader. The latter, holding the crayon in his right hand and

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lightly clasping the hand or wrist of the subject with his left, slowly traces and reproduces the character with some approach to accuracy. Of all muscle-reading feats this is the most marvelous. Mr. Stuart Cumberland and Mr. Bishop are the only muscle-readers, so far as I have been able to learn, who have ever accomplished it.

The testimony of all muscle-readers, especially during their first attempts, has been that they do not know what their methods are. Early success is a self-surprise. It creates the impression that one is possessed of a weird power. This was my own experience. But after repeated experiment and close observation, I am convinced that the facts admit of rational explanation. Primarily the results are all due to a single cause, but several different conditions enter into their execution. In making his way to the location of a hidden object, the subject usually does not lead the muscle-reader, but the muscle-reader leads the subject. That is to say, so long as the muscle-reader moves in the right direction, the subject gives no indication, but passively moves with him. The muscle-reader perceives nothing unusual. But, the subject's mind being intently fixed on a certain course, the instant that the muscle-reader deviates from that course there is a slight, involuntary tremor, or muscular thrill, on the part of the subject, due to the sudden interruption of his previous state of mental tension. The muscle-reader, almost unconsciously, takes note of the delicate signal, and alters his course to the proper one, again leading his willing subject. In a word, he follows the line of least resistance. In other cases the conditions are reversed; the subject unwittingly leads the principal. He becomes so much interested, and his mind is so intently fixed upon the object of the search, that he is oblivious of everything save the attempt to find it. Subjects have led me in this manner, and I have seen professional mind-readers enjoying a like benefit. Again, I have had subjects who would give patent assistance at intervals, and at other times leave me to my own resources. It must be said that this method of muscle-reading is exceptional; the usual one is that first described.

The discovery of a bank-note number requires a slightly different explanation. The conditions are these: The subject is

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intently thinking of a certain figure. His mind is in a state of expectant attention. He is waiting for but one thing in the world to happen—for another to give audible expression to the name of that which he has in mind. The instant that the conditions are fulfilled, the mind of the subject is released from its state of tension, and the accompanying nervous action causes a slight muscular tremor, which is perceived by the acute senses of the muscle-reader. This explanation applies, also, to the pointing out of one pin among many, or of a letter or a figure on a chart. The conditions involved in the tracing of a figure on a blackboard or other surface are of a like order, although this is a severer test of a muscle-reader's powers. So long as the muscle-reader moves the crayon in the right direction, he is permitted to do so; but when he deviates from the proper course, the subject, whose hand or wrist he clasps, involuntarily indicates the fact by the usual slight muscular tremor. This, of course, is done involuntarily; but if he is fulfilling the conditions demanded of all subjects—absolute concentration of attention and absence of muscular control—he unconsciously obeys his impulse. A billiard player does the same when he follows the driven ball with his cue, as if by sheer force of will he could induce it to alter its course. The ivory is uninfluenced; the human ball obeys. This explains Mr. Cumberland's success in his experiment before the Khédive of Egypt. It will be noted that the account says that the paper was "gummed to the wall." This indicates that the writing was done in large characters, and was not of the ordinary size. Under the conditions, it is no more remarkable that Mr Cumberland should have traced the Arabic characters than that, in other instances, he should have traced letters, figures, or the outlines of beasts or birds.

Success in muscle-reading depends upon the powers of the principal and upon the susceptibility of the subject. The latter must be capable of mental concentration; he must exert no muscular self-control; he must obey his every impulse. Under these conditions the phenomena are in accordance with known laws of physiology. On the part of the principal, muscle-reading consists of an acute perception of the slight action of another's muscles. On the part of the subject, it involves a nervous impulse

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accompanied by muscular action. The mind of the subject is in a state of tension, or expectancy. A sudden release from this state excites, momentarily, an increased activity in the cells of the cerebral cortex. Since the ideational centers, as is usually held, correspond to the motor centers, the nervous action causes a motor impulse to be transmitted to the muscles. Familiar examples of this are many. Any emotional disturbance of mental equilibrium has a like effect. The agitation of the impassioned orator, the wringing of the hands of the bereaved mother, the threatening gestures of the angry teamster, are instances of a like action, unrestrained.

The muscle-reader receives from his subject intelligence in regard to only two things—direction and time. In seeking a hidden object, he learns nothing of its nature, of its locality, or of whether it is one foot or one mile distant from his outstretched hand. In determining the shape of a figure or in finding a letter on a chart, he learns only the instant of time when certain conditions are fulfilled. If the conditions should not all be prearranged, the signal that he receives would be meaningless. The conditions amount to a tacit understanding between principal and subject that the one is to signal the other at the instant when he shall name or point to the letter or figure that is the object of inquiry. Involuntarily the subject carries out his agreement. The signal always means, "The expected has happened."

A statement of these facts is a sufficient answer to those who contend that, since there is nothing in a name, muscle-reading may, after all, be mind-reading. An intelligent comprehension of the subject will establish the fact that muscle-reading is just what the term implies. But mind-reading cannot be so favorably considered. It is a species of trickery in the performance of which the ordinary committee will, unwittingly, aid and abet the performer. Moreover, the mind-reader never permits himself to be subjected to test conditions, nor does every one know how to impose them. Mr. Bishop deceived the late Prof. William B. Carpenter* by a simple trick with cards that a three-card-monte man would have detected in an instant. An expert should always be set to catch an expert. The average man is a poor observer.

* "Nature," vol. xxiv., p. 188.

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In recounting occurrences involving the unusual or the marvelous, he is especially unreliable. He fails to take note of half that he sees, and he remembers things that never occurred. The part that he does not tell contains the key to the explanation.

The mind-reader succeeds by virtue of two conditions: 1, he always has the use of vision, when vision is necessary to the accomplishment of his object, even when he is supposed to be blindfolded; 2, he always requires his committeemen to part with whatever they have in mind, either by tracing or writing it, or by communicating it to others. In the transfer, which is always made in some peculiar manner, the mind-reader manages to possess himself of it, and he is then ready to "read" it. The one thing that no mind-reader has ever done, is to read a word kept in mind by another person. If treasures are laid up upon earth, thieves may break through and steal; but no man can be robbed of his unuttered thought.

CHARLES GATCHELL.

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TRADE-UNIONISM AND UTOPIA.

WHAT is generally called "the social question," and now more particularly "the labor question," is in one sense no new thing. The various inequalities of men's lots in life, with which that question concerns itself, have always provided a subject for the moralist and the speculative philosopher. From the days of Plato downward, schemes have been suggesting themselves to some minds for lessening these inequalities or doing away with them. An attempt at realizing the Platonic polity was actually contemplated; while, without making too much of what is certainly ancient history—from the days of Wat Tyler, at all events—the ideas of social reformers have at intervals resulted in movements which, in one way or another, have aimed at solving practically the social or labor question. These schemes, these ideas, these theories, as allied with attempts at practice, have been growing in frequency for more than a hundred years. An increasing number of people have, during that period, been found to quarrel with existing social conditions, and seriously to believe that some fundamental change in them is producible.

Now this belief in each case has involved two things—some conception of an improved social state to be aimed at, and some conception of the means by which it might be brought about. And these conceptions, during the past hundred years, have shared with much else this common characteristic: they have not only varied, but they have also progressed; and in form, method, and intention, whatever may be their real value, they have tended to become more and more scientific. The earlier modern Utopias were vague and sentimental; they were sketches of an ideal structure, rather than architectural drawings of one. And the means by which they were to be realized were even vaguer; there was either to be some miraculous outburst of universal love, or an outburst, equally miraculous, of universal violence.

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All the devils in man were either to be cast out or else to be called out; and in some unexplained way, by their absence or by their action, the world was to be turned, after a week or two, into a perfect kingdom of Heaven. Gradually, however, the reformers changed their method. Instead of merely observing the evils of the world, describing them, and declaiming at them, they began to seek for a scientific explanation of their origin. They began, in fact, to copy the frigid political economists. Thus it has come about that a school or party, whose earlier intellectual leaders were either mad dreamers or equally mad agitators, is at last presenting itself to us, on its theoretical side, as a serious and scientific school of economic thinkers, who, however bitterly opposed to the apologists of the existing order, are prepared to antagonize them on their own ground and to fight them with their own weapons.

When, however, we turn from the social reformers as theorists, and consider their ideas or counsels as men of action, we find that their progress has been far less rapid. In analyzing the evils they desire to remove, in proving that they are removable, and in advocating their removal, they have learned to talk and to think like other men of science; but their ideas as to how the result in question is to be accomplished have remained, till very lately, as unscientific as they ever were. Let any one compare the work of Karl Marx on "Capital" with the writings of the earlier Utopians, and he will realize how great, as an intellectual movement, has been the progress of the cause I speak of; but many, probably most, of the students of Karl Marx have had no clearer ideas than had the students of Cabet or of Rousseau, as to how the intellectual movement is to be made a practical one. They have had dreams of universal upheavals, of universal catastrophes, which somehow would do their business for them. They have thought to re-fashion society as Aaron maintained he had fashioned the idol for the Israelites. He cast gold and silver into the fire, "and there came out this calf." The reformers, till yesterday, thought they could do the same, though they had hardly decided whether the fire into which they would cast society should be that of hate or that of love. And hence the idea of any new solution of "the social question" has been till

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quite recently, for all sensible people, either a laughing stock or a terror; a thing to be passed over or a thing to be stamped out; not a thing to be weighed dispassionately and to be dealt with on its merits.

But during the past few years, and especially during the past twelve months, the situation has changed in a very remarkable way. The growth of trade-unionism, and the international character which it has assumed, have been putting the practical side of social reform before us in an entirely new light, and have provided it suddenly, for the first time, with a policy which admits of discussion on the part of sensible people. And this policy does more than admit of discussion. Wonderful to relate, it demands discussion. Despite the failures which, in its more ambitious attempts, trade-unionism may have met with, the mere fact that such attempts have been made in the way they have been made, is enough to suggest that they may be more successful in the future. They all point to the possibility of one and the same thing—a federation of labor over the whole civilized world. This, at all events, as a practical end to aim at, is fast taking the place, among the aspirants after social change, of plots, risings, massacres, and explosions either of dynamite or of love; and whether the end will ever be realized or not, it will be at all events not idle to inquire what we may hope or fear as the result of it if it should be realized.

Let us suppose, then, the federation of labor to be carried to the utmost extent of which theoretically it is capable. Let us suppose all the working classes over the entire civilized world to be so grouped in unions, the unions to be so connected, the interests of all of them to be thought by themselves so identical, the organization and discipline of the whole to be so complete, and the influence of the whole over the various governments to be such, that all laborers form a single corporate body. How would labor, in that case, stand related to capital? How would the laborers stand related to the employers of labor? If the answer to this question is what our latest revolutionaries expect, unionism thus developed would accomplish all their dreams. By an irresistible, but bloodless, and perhaps gradual, process, capital would pass away from the hands of the capital-

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ists, the employers of labor would no longer be employers, and all wealth would, in a measurable time, be redistributed. The way in which it is thought that this change would accomplish itself is obvious. If all laborers should be members of a universal union, undivided in counsel and completely organized in action, any employer who should offend that union would be instantly left without any laborers to employ. In other words, labor would be in a position to dictate terms to capital, instead of capital dictating terms to labor. Nor would the case be mended if all the employers of the world, as well as the laborers, should be organized. Indeed, to understand the hypothetical situation fully, we must suppose such to be the case; and the ultimate factors in the social struggle would thus be a universal strike opposed to a universal lock-out. Now, although in a struggle which is partial, and which lasts but a short time, capital may, in power of endurance, have the advantage over labor, it may easily be argued that if the struggle should become universal, labor would tend to have the advantage over capital. For capital without labor is not only powerless and useless, but unless it is used by labor it rapidly wastes away; whereas labor, even by itself, would at least produce something, and might in time provide itself with new capital. In addition to this, we must remember that while the capitalists would be few, the laborers would be many; and physical force, though it might never be actually appealed to, would give its weight to labor, silently supporting it in the background. Making, then, the assumption, for argument's sake, that labor can ever universalize and perfect its organization, the time must arrive when, at all events for the moment, capital and the possessors of capital will be altogether at its mercy. The capitalists will have before them only two courses—either to allow their capital to be used under such conditions and on such terms as the laborer may dictate, or not to allow it to be used at all. In this last case, it would benefit neither themselves nor others; and even though it might be handed over to nobody else, they themselves would be practically dispossessed of it. A man, for all practical purposes, is as completely expropriated if he is not allowed to use his money, as he is if his money is actually taken away from him. On the other hand, if the capital of

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the world should be employed on terms dictated by labor, it is certain that such wages would be exacted as would leave to the capitalists no profit or interest. In this case, therefore, just as much as in the other, they would virtually be expropriated; their whole wealth would be withdrawn from them. And this, indeed, is the precise situation which English ship-owners have seen actually menacing them. If they should employ their capital on the terms demanded by their men, no profits would be left them; and they themselves, as they have distinctly told the public, would be no worse off if they should suspend their business altogether. Now, in an isolated case like this, such a suspension might be possible. A single body of employers might, in the last resort, be able for a time to keep their capital idle; but it is practically certain that the same thing could not be done with the whole capital of the world, in opposition to the whole of the laborers. The capital would continue to be employed, but it would be employed on the laborers' terms. The capitalists might not technically be robbed of their property, but they would have no share in its control or in its revenue; and though nominally they would have lost nothing, in reality they would have lost everything. And this brings us to two all-important questions: Could such a situation be brought about? And if it could be brought about, could it last? Or, in other words, would labor be able to keep what, in this case, for the moment, it would inevitably win? To both these questions the answer will be, No; for reasons some of which may be said to lie on the surface, while others have a tendency to be always sinking beneath it.

To begin, then, we must admit that the recent developments of trade-unionism have been surprising in the last degree, and vividly suggest the kind of result we have been considering, though they do not promise or portend it. They force on the imagination a picture of that result, but they do not offer to the judgment any indications that it is possible to realize it. On the contrary, if we consider them dispassionately, they do the precise opposite. In the first place, the following facts must become apparent to us. The wider the attempted scope of the union or federation that we speak of, the more difficult will become the task of

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uniting the various sections to be comprised in it, and the greater will be the antagonism of interests between these sections. Until all the climates and soils of the world shall offer equal advantages to the laborer, there never can be a community of interest between the laborers of all countries; and as the laborers become owners of the soils that they occupy, the diversity of interests will be more and more apparent. It has often afforded matter for useless wonder to philosophers, that the various peoples should consent to supply soldiers to fight and die for the ambition and aggrandizement of their rulers. It is a fact, however, that the various peoples have done this; and if they have fought and died for the advantage of others, we can hardly doubt that they would do the same for the advantage of themselves. The laborers of different countries, in fact, are natural allies only so long as they are in the presence of what they think to be a common foe—capital; and if once that foe should be removed or crippled, they would find bitterer foes in one another than they ever found in it.

These difficulties, however, I only mention in passing. I not only do not purpose to dwell on them, but for argument's sake I will suppose that they do not exist, and will proceed to others, which, though less apparent, are far deeper and far better worth discussing. Let us suppose, then, that the first great step has been accomplished, and that, despite the difficulty of organizing vast masses and of harmonizing discordant interests, all the laborers of the world are united in one corporate body and are actually, in the way already described, confronting the capitalists and the employers. Now, would the fact that the laborers had advanced thus far afford any proof that they would be able to advance so much farther as to make any permanent use of the partial advantage they had gained? It would certainly, at first sight, seem that the answer to this question must be, Yes. "Here," it would be argued, "is labor led by its own leaders. With no instruction, with no dictation from above, it has shown itself capable of organizing and directing itself. What doubt can there be that the leaders who have brought it thus far will be competent to bring it one step farther, and teach it how to appropriate the fruit that is already in its hands? If labor can

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organize itself in this marvelous way to resist capital, who can doubt that it can organize itself to employ capital?" There we have in a few words the argument which presents itself to our latest prophets of labor, and which they present, with not unnatural triumph, to alarmed or sanguine hearers. It is an argument, however, vitiated by a fallacy which seems commonly to escape not only those who use it, but those who would give anything to refute it. What we are asked to consider is how certain men have succeeded in organizing labor, and what a formidable thing they have made of it. But in reality what these leaders have done has been something quite different. They have organized laboring men, but they have not organized labor. On the contrary, they have organized idleness—abstention from labor. It is impossible to over-estimate the importance of this distinction. The whole ostensible object of the leaders of the labor movement is to secure for labor the wealth which, according to these leaders, labor produces. But the amount of wealth which labor produces, or, in other words, the amount of the prize for the possession of which labor is contending, depends on the skill with which the labor of the laborers is organized, not on the skill with which the idleness of the laborers is organized. Their organized idleness is no doubt a valuable weapon, but it is valuable for militant purposes only, not for productive purposes. It may assist them to seize on the instruments of production, but it does not tend to give them any skill in using these, any more than the ability to rob a man of a fiddle tends of itself to turn a burglar into a musician. Thus the ability of the laborers to organize a universal strike might show that they are able to take all the wealth of the employers from them, but it would not indicate any ability whatever to transfer any fraction of this wealth to themselves. Thus far the productivity of labor has depended on the skill of the employers in commanding it and directing it. If the employers are to be ousted, and if labor is to maintain its present productivity and not to sink into a hopeless and helpless chaos, men with similar powers of command and similar skill must be found to take their place; and the question is, Would such men be forthcoming?

Let us consider exactly what this question involves. It is

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not a question of whether or not the laborers have, among their millions, men of sufficient natural capacity. No doubt they have; and if all the present employers of labor should die childless during the course of the next few years, we may be certain enough that, under the present condition of things, laborers would be found who would gradually take their places and supply us with a new generation of employers, capitalists, and millionaires. The question is not whether such men would be forthcoming under present conditions, but whether they could be induced to come forward under entirely changed conditions. Hitherto the only inducements worth taking account of, that have ever incited men to direct and to organize labor for productive purposes, have been the hope and the possibility of securing for themselves whatever special product their ability has been instrumental in producing. But the essential idea of all the leaders of the labor movement has been to take away these inducements, or to make them as small as possible. It is obvious, therefore, that the ultimate success of this movement must depend on whether society could, under such conditions, still secure the kind of ability spoken of.

Now, one of the most important morals that have been drawn from the growing successes of unionism, has been that this kind of ability could be so secured. We are urged to look at the characters and careers of the men by whom labor is now being organized. It is pointed out to us that the motives which actuate these men are not personal gain and the accumulation of capital. They give to the common cause exceptional ability, and yet they neither claim nor expect any exceptional reward. The ability required to organize a great strike is not less than the ability required to organize a great industry; and if facts prove that, without any interested expectations, men can be got to do the one, what doubt, it is asked, can there be that we shall get men, on the same condition, to do the other? The fallacy of this argument is what I am here endeavoring to emphasize. On the surface it is eminently plausible; but the more it is examined, the more clearly we shall see not only that it does not prove what it is supposed to prove, but that its entire tendency is to prove the exact opposite.

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In the first place, to repeat what I have said already, the leaders of the labor movement have not, in that capacity, been leaders of labor. That, however, is by no means the whole of the case. A more important feature of it is that no man who has been successful as a leader of labor has ever been found among the leaders of the labor movement. To put the matter in a plainer and more brutal way, no man who has been successful in increasing production has ever been found among those who are working to redistribute the product; and conversely, not one of the men who are working to redistribute the product has ever shown himself capable of assisting in increasing production. To this broad rule there may perhaps be some isolated exceptions, but as a broad rule it is indubitably true. Outside of a circle of foolish and half-sincere sentimentalists, where do we find any of the opponents of capital among men who have inherited it? Or—and this is a yet more pertinent question—where do we find any of the opponents of capital among men who have the ability to make it? And by the ability to make it we mean a very simple thing—we mean the ability to direct labor to advantage. The leaders of the labor movement have, as a class, been men absolutely without that quality; and without wishing to call in question the sincerity of their philanthropy, the fact remains that their desire to divide the wealth of the world among their fellows has had for its basis an utter incapacity to add anything to that wealth themselves.

And now let us deal with the fact, which I have no wish to question, that these men have been so far disinterested that they have, in spite of their exceptional efforts, not aimed at securing any exceptional pecuniary reward. That may be perfectly true; but though there may have been no pecuniary reward to stimulate them, there have been rewards of a kind equally selfish. There has been in many cases the satisfaction of a grudge, owed to society because they have not been able to succeed in it; and, above all, there has been the intoxication of power and notoriety suddenly placed within the reach of men who would otherwise live and fret in uneventful, helpless obscurity. There is no greater mistake than to imagine that men whose sole road to success lies in attacking wealth, are for that reason less disinterested,

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less greedy of personal distinction, than the men whose road to success lies in acquiring or creating wealth. Indeed, a study of human nature in general, and of modern industrial history in particular, proves that in a society where there are no special rewards, there will be no exercise of any special ability. It proves, further, that between the ability and the reward there is always some connection in kind, and that, while anger or ambition or enthusiasm may lead a man to secure many things for his fellow-men, one reward only will lead him to produce wealth for them, and that is the possession of a large proportion of the wealth produced. The recent progress of industrial events, therefore, has no tendency to throw any doubt on the belief that the possession of private property, the enjoyment of interest, and the dictatorship—however limited—exercised over labor by the men to whom the profits will go, or by their representatives, form essential conditions not only of the production of wealth, but of the prosperity of labor itself.

We must not, however, blind ourselves to the other side. History is teaching us that laborers may be organized in two ways: first, as a producing body; secondly, as a resisting or self-protecting body. In the latter capacity they may be able to govern themselves, but in the first they must be always governed by others. The conclusion is that in the very nature of things it is impossible for either party to gain a complete victory. It is obvious that the capitalist cannot exist without the laborer. A deeper and more dispassionate study of human nature will in time convince even our most ardent social reformers that the laborer will never progress except with the progress of the capitalist. The names of things and the forms of things may change; but the essential facts of the case, being facts of human nature, will always remain the same, till human nature is metamorphosed.

W. H. Mallock.

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RAILWAY PASSENGER RATES.

THE average amount received by railroads in the United States for carrying a passenger one mile, is two and one sixth cents. In England it is a little less; probably about two cents. In France it is not quite a cent and a half; in Belgium and in Germany about a cent and a quarter. In Austria, before the recent changes in the tariff, it was a little more than a cent and a half; at present it is probably only about a cent. In British India it is less than six tenths of a cent. These are the actual amounts received. The results have been obtained, wherever possible, by dividing the total passenger earnings by the number of miles traveled by passengers. In England, where statistics of passenger mileage are not given, we are compelled to rely on estimates. The nominal rates of fare are almost always higher than the average of actual receipts, owing to excursion and commutation business. The difference between actual and nominal rates is usually from 10 to 20 per cent. Why are passenger rates so much lower in continental Europe than in England or in America? Can we hope for a change in this respect, and for a reduction in the cost of passenger travel to the standard of France and Germany? What conditions must be fulfilled to make such a reduction possible? These are questions which are being asked everywhere, especially since the recent reductions in Austria and Hungary have attracted more wide-spread attention to the subject. Let us try to answer them in order.

The first obvious reason for the difference in fares is a difference in the kind of service rendered. Continental Europe pays two thirds as much as America or England and gets an inferior article. India pays still less and gets still less. The difference is seen both in quality and in quantity of service. In India express trains rarely run at a greater speed than 25 miles an hour. In Germany and France their speed ranges from 25 to 35 miles

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an hour, and only in exceptional instances is more than 40 miles an hour. In the United States and in England the maximum speed rises as high as 50or, in exceptional instances, 60 miles an hour. With regard to the comfort of the cars in different countries, there is more room for difference of opinion; but there can be no doubt that the average traveler in the United States, or even in the English third-class car, fares better than he would in the corresponding class on continental railroads, and infinitely better than the bulk of travelers in British India. No rates, however low, would induce an American to be content with Austrian third-class accommodation, or to tolerate that which is furnished to the average Hindoo traveler.

There is a second reason, of even greater importance, though it is less obvious at first sight. This is the difference in the number of trains. Taking into account density of population and amount of travel, Europe has more trains than India, and America or England more than continental Europe. If there are 500 travelers daily who wish to use a certain line in India, the authorities give them but one or two trains a day. They are thus able to secure very large train loads; and as the train, rather than the passenger, is the unit for many items of expense, the sacrifice of public convenience in the matter of hours of travel is a source of economy for the railroad. For a given number of people who can use railroads, Austria provides more trains than India, Germany more than Austria, England more than Germany, and the United States more than England. Each concession to the public convenience in this matter involves a loss which must be paid for somewhere.

Our railroad men are fully awake to the economy of large train loads. They would be ready to make great reductions in charge if large loads could thereby be secured. In freight business they have carried this policy out to the fullest extent. A ton of freight can be forwarded at almost any time of day or of night with comparatively little inconvenience to the shipper. The railroads can thus make train loads to suit themselves; and it is a significant fact that American freight-train loads are larger than those of Europe, while American freight rates are decidedly lower. Where the railroad men have had power

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to handle increased loads with fewer trains, they have done so, and the public has had the benefit of the reduction to a striking degree. They have not been able to do the same thing in passenger business, because the public would not allow it. The differences in passenger rates in different countries are not due to arbitrary action on the part of railroad managers, but to differences in public demand. Continental Europe demands cheapness, and is willing to undergo the sacrifices attendant upon it. England and America demand good trains at convenient times, and are willing to make the necessary pecuniary sacrifice rather than go without them. Not only does each country pay for what it gets, but it gets what it wants to pay for—a fact often overlooked by those writers who seek to apply the standards of continental Europe to England and America.

That passenger fares are cheapest in the countries which have the lowest wages, is no mere accident. Wages are the prime cause of difference in the whole matter. If a man makes only five cents an hour, he can afford to wait an hour to save five cents. If he makes ten cents an hour, he cannot do so. If he makes fifty cents an hour, he is very far from being able to do so. To the man who earns high wages, economy of time is more valuable than a slight difference in railroad fares. He can afford to pay five or ten cents more for the sake of having trains run when he wishes. For long distances, he can afford to pay fifty cents or a dollar more for the sake of having them run fast. The Hungarian would prefer, for the sake of saving a dollar on the fare between New York and Philadelphia, to wait half a day for his train and then to take four or five hours for the journey. The American would rather pay a dollar more to have a train run when he needs it and to have it go as fast as possible. In proportion to density of population, we run many trains where European roads run few. Where we run few trains, Europe builds no roads at all. We demand facilities for quick movement wherever we can have them. An increase of facilities is worth more to us than a reduction in charge.

How much more work is demanded of American railroads than of European ones, will be seen by the following table:

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Countries.	Population.	Miles Run by Trains Annually.	Annual Train Service per Head of Population.
United States (1889),.....	61,000,000	724,000,000	12
Great Britain (1889),.....	38,000,000	303,000,000	8
Germany (1889),.....	48,000,000	181,000,000	3¾
France (1888),.....	38,000,000	145,000,000	3¾
Austria-Hungary (1887),...	40,000,000	66,000,000	1⅔
India (1889), ...200,000,000		51,000,000	0¼

These figures are for passenger trains and freight trains together, as some countries do not give statistics of the two separately; but the general result would be nearly the same if passenger trains alone could be considered. The figures show that for every man, woman, and child, a train is run 12 miles annually in the United States, in Great Britain eight miles, in Germany or France a little less than four miles, in Austria not much more than a mile and a half, and in British India less than a quarter of a mile.

But why cannot our railroad men, with our present train service, secure larger loads by making lower rates, and give us cheap service as well as plenty of it? Why cannot we secure two good things instead of one? For two reasons: 1, because it is not certain that low rates would be followed by greatly-increased travel; 2, because such increased travel would not be so economical to handle in America as it is in Europe. It is wrong to assume that, because reductions of charge in Europe have increased travel enormously, they would have a proportionate effect in America, and a corresponding advantage in American railroad economy. It is a somewhat significant fact that second-class trains at reduced rates have been extremely successful in Europe and not at all so in America. Other things being equal, the American public would be glad to have its travel at lower fares; but it cares more for comfort and speed, and for being able to travel at its own times, than for a slight difference in charge. The assumption so frequently made, that a reduction in fares would cause an enormous increase in travel in this country, is for the most part a pure assumption, not borne out by the facts. In a country with dense population and low wages, whose railroad facilities are little used, a reduction in rates may produce

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much gain and little loss. This has been precisely the state of things in Hungary; it is not at all the state of things in America. The railroads of Hungary before the recent reform carried about 5,000,000 passengers a year, in a population of 15,000,000. After the reform was put into operation the number of passengers more than doubled. But even after this change the Hungarian system was far below the American standard of usefulness. During the first year after the change all the railroads in the kingdom of Hungary together carried about as many passengers as the Long Island Railroad alone. Massachusetts has only about one fourth the population of Hungary, yet the railroads of Massachusetts carry seven times as many passengers as those of Hungary. To do this, they furnish an enormously larger number of trains, and at some points their tracks and stations are already so crowded that an increased use would not be accompanied by increased economy to the road, even at the same rates of fare. Not only are the Hungarian demands as to speed and quality of service less exacting than those of Massachusetts, but the Hungarian problems of operation are much simpler.

To these facts, rather than to "the zone system," must be ascribed the difference between American and Hungarian charges. The zone system in itself amounts to very little. It simply substitutes a longer unit of charge for a shorter one. It means charging ten cents for every ten miles or fraction thereof, instead of one cent for every mile or fraction thereof. It enables the ticket agent to keep fewer kinds of tickets in stock, and thus gives a slight advantage in railroad economy. Whether that advantage is sufficient to make up for the arbitrary inequality of treatment between different zones, whereby points just within the limit are favored and those just without the limit are discriminated against, each railroad or each community must settle for itself. The importance of the zone system in Austria and in Hungary lies in the fact that its adoption was accompanied by a great reduction in rates. The unit rate for slow third-class trains, which had previously been nearly a cent and a half a mile, was reduced to less than one cent. Travel increased rapidly under the influence of this change, without the necessity of a corresponding increase in the number of trains or in their speed. The trains, for the most

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part, are very slow. No baggage is carried free. All must be laboriously weighed, making it necessary for the traveler to be at the station a long time before the departure of a train. The use of railroads under the new system, though vastly greater than it was before, is vastly less than that of a well-managed American road at American rates.

Our American railroads already give commuters the benefit of fares not far different from those of Hungarian railroads. To demand that they should make these rates general because Hungary or Austria has done so, would be to ignore differences in service and in conditions of traffic. If any one will go to a station in one of our large cities at a busy time of day and ask whether double the traffic could be handled without great increase of expense, he will at once see the absurdity of the question. The facilities are already crowded to overflowing. There is reason for demanding reform in methods of handling passengers, but such reform in operation is a necessary condition for any considerable reduction in passenger charge. In these respects we have little or nothing to learn from the Hungarians. They have been able to make the changes which they have made, not because they are in advance of us in methods of operation, but because they are immeasurably behind us in the demands which their people make upon railroads and in the services which those railroads render, or are required to render.

ARTHUR T. HADLEY.

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THE FLOOD PLAINS OF RIVERS.

FIRE, flood, famine, war, and pestilence were long reckoned foremost among the evils to which mankind is subject. With the growth of knowledge concerning the relations of man to his environment, and with the development of far-sighted altruism, men have united in devising and applying means for suppressing, or at least for opposing, four members of this maleficent family. Fire is provided against by numerous devices adapted to all modes of life and to all stages of culture; by legislative enactments and municipal ordinances in civilized nations, and by special organizations of men and appropriations of money throughout the more advanced countries. Famine flies before the community of interests and the ready interchange of products that measure the advance of nations in material and moral development. War in most countries is opposed by two of the most potent determinants of conduct, namely, private principle and public policy; and of late a powerful movement toward the abolition of war among civilized nations has been gaining strength. Pestilence is weakened by combinations among men for mutual aid, is crippled by the decadence of personal and national strife, and is disarmed by the cleanliness of modern times. Even now biology and medicine are uniting to invade the last stronghold of this evil agency. They are isolating her protean germs, laying bare her insidious processes, turning her own weapons against her by opposing bacterium to bacterium and ptomaine to microbe, and, if the signs of the times are not misleading, are surely encompassing her final downfall. Fire, famine, war, and pestilence have been successfully met by human ingenuity, foresight, benevolence, and sagacity; but the flood remains, a barely-mitigated evil, a hardly-appreciated obstacle to progress. Indeed, as population has increased, men have not only failed to devise means for suppressing or for escap-

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ing this evil, but have, with singular short-sightedness, rushed into its chosen paths.

A fertile bottom land was the goal of the American pioneer as he bent his tedious way from the Atlantic seaboard across the mountains and into the broad basin beyond. Moreover, his course was constrained by hills and forests to the valleys of rivers and streams. So it happened that the early homesteads and settlements were located on the flat and fertile plains flanking the waterways, and that the early routes of travel traversed the same plains. Thus, in one stage of the settlement of the Mississippi valley, the population was confined mainly to the narrow belts of alluvial land skirting the streams.

As time passed, isolated homesteads grew into settlements, and settlements into towns; and as the towns waxed in population, wealth, and trade, some of them became cities. Meantime the bridle paths and wagon trails of the earlier period were transformed into stage routes and turnpikes, and at the same time navigation was established on the larger streams. Yet in this stage, as in the earlier one, the centers of population and the lines of travel and traffic were confined to the waterways, and only a small proportion of the nomadic and agricultural population pushed into the forest fastnesses of the uplands. During this stage such cities as Wheeling, Cincinnati, and Louisville came into being on the Ohio; and as the border land between white settlements and Indian hunting grounds slowly advanced, such cities as St. Louis, Keokuk, Dubuque, and La Crosse on the upper Mississippi, La Salle and Peoria on the Illinois, Terre Haute and Vincennes on the Wabash, St. Charles, St. Joseph, and Omaha on the Missouri, and a score of lesser towns on a dozen other rivers, were planted. But during this era of overland staging and river navigation, as during the earlier era of pioneer travel, settlement followed the waterways, population gathered on the river-side plains, and the uplands were sparsely inhabited or quite unsettled; so that, despite the greater area of upland, the larger part of the population was concentrated on the lowlands.

A third stage in the settlement of the Mississippi valley was characterized by steam locomotion. During this stage the railways were first extended along the smoothest lines and through

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the largest towns, thus adding to the population and wealth already accumulated on the alluvial lowlands; and steam navigation co-operated with the steam railway in accomplishing this end. But later the railways were pushed out over the uplands, carrying trails of settlement in their divergent courses; and at the same time the influence of river navigation waned. This stage was that of the dispersion of population, and has reached to the present time; yet to-day, as during the earlier stages in the occupation of the Mississippi valley, population continues to follow the rivers, and cities, towns, and homesteads are found on the alluvial lowlands by which the rivers are flanked.

It would be interesting to determine the relative density of population upon the riparian lowlands and upon the intervening uplands, not only within the Mississippi valley, but throughout the eastern United States; but the data are inadequate. Only limited areas are mapped with such accuracy as to distinguish between lowlands and uplands, and even in these the cities stretch from lowland to upland, the towns often stand on slopes, and the civil divisions by which the rural population is enumerated are independent of physical boundaries; so that without a special census the common population cannot be divided. A rough evaluation of the relative areas of alluvial lowland and intervening upland in the eastern half of the United States, and a still rougher estimate of the riparian and non-riparian population, may, however, be made. Detailed maps of typical tracts indicate that from five per cent. to 15 or 20 per cent., or an average of about 10 per cent., of the given area may be classed as alluvial land. Probably this ratio may safely be extended to the 1,500,000 square miles of the eastern United States, exclusive of the delta plain of the Mississippi. This single alluvial tract is 1,100 miles long, measured on the river, or one half as long, measured in a direct line; more than 100 miles in average width; and fully 60,000 square miles in extent. The total area of alluvial lowlands in the eastern half of the country would thus appear to be not less than 210,000 square miles, or 14 per cent.

The concentration of population upon alluvial lowlands, commencing in the interior with the advent of the pioneer, is still notable, and is displayed in New England, along the Atlan-

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tic seaboard, in the Gulf States, and on the great lakes, as well as in the Mississippi valley. Eighteen of the 21 principal cities and towns recorded by the eleventh census * in Illinois are located upon rivers, and their business blocks are built upon alluvial lowlands. Fifteen of the 18 recorded cities and towns in Indiana were founded upon alluvial lands, though several have since extended partly upon adjacent uplands. The nucleus of every city and town recorded in Iowa was fixed upon a riparian plain, and more than half the urban population of the State is to-day confined to such plains. In Missouri all the leading cities are partly or wholly riparian. In Ohio only half a dozen of the more prominent centers of population stand upon uplands, though the larger cities, originating on the alluvial lands, have commonly encroached upon the adjacent hills. Two thirds of the cities and towns of Pennsylvania are built largely upon the lowlands by the river sides. The eastern cities marking the "fall line" from New York to Richmond are essentially riparian, despite the dearth of alluvial deposits along this line of recent earth movement. Indeed, if the 355 cities recorded by the eleventh census in the States between New England and the one-hundredth meridian are grouped according to their situation with respect to waterways, 204, with an aggregate population of 5,593,340, are found to be riparian. There are 59 seaboard and lakeside cities, with an aggregate population of 6,880,043; 44 inland cities, with a population of 840,466; and 28 unclassified cities, aggregating 675,676 in population. Excluding the seaboard and unclassified cities, there remain 248 centers with an aggregate population of 6,033,806, of which 89 per cent. is riparian; or, including the various classes, there is a total urban population of 13,989,529, of which 40 per cent. is riparian. The concentration of population on the alluvial lands is even more notable among towns and villages than in the larger cities, which have commonly outgrown the valleys and spread over the adjacent uplands. The smooth plains are favorite sites for homesteads and hamlets, for villages and county towns; the most practicable railway routes traverse them; river navigation and industries

* Unpublished record, furnished through the courtesy of Mr. Henry Gannett, geographer of the census.

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that depend on water power attract capital and labor toward them; the most fertile soils are found upon them; and so the banks of the waterways bristle with lesser as well as with greater aggregations of population. Summarizing the values published by the census bureau and the well-known facts of like import with respect to smaller towns and individual residences, it seems safe to estimate that fully 25 or 30 per cent. of the population of the eastern United States is crowded upon the 14 per cent. of alluvial lowland. If this estimate is just, then the density of lowland population is about twice as great as that of upland population. In view of certain conditions to which alluvial lands are subject, it would be surprising even to find the population uniformly distributed over lowlands and uplands; it is doubly surprising to find men massed on the lowlands.

The river makes its own bed. Common observation shows that streams of high declivity and rapid flow attack their banks and bottoms, now here, now there, and thus progressively corrade their channels; that streams of low declivity and sluggish flow deposit sand and mud along their banks or on their bottoms, now here, now there, and thus progressively fill their channels with silt; and that streams of medium declivity and moderate flow sometimes corrade their sides and bottoms, and again deposit comminuted matter thereon, thus modifying their channels through a combination of processes. Moreover, it is a matter of common observation that such changes in channels are most rapidly effected during high-water stages, so that the aspect of a trout brook or a mill stream, with its banks of gravel, its glistening cascades and darkening pools, its grassy banks and flower-fringed meadows, may be completely changed by a single freshet.

These common observations have been extended and systemized by students of the earth and its features; and it has become a fundamental tenet in geologic doctrine that not only the channel, but the valley in which it lies, is fashioned by the stream. There was a time, indeed, when pioneer geologists, misled by the magnitude of the work and the minitude of the agent, ascribed the origin of valleys to rock-fissuring produced by profound earth movement; but since the days of Lyell the competence of streams to excavate the broadest valleys and the deepest

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canyons has been recognized. The chasm in which the Hudson breaks through the highlands—albeit possibly located by a line of earth fracture—was excavated by the same river that now sluggishly washes the lofty cliffs; the gorge of the Mississippi from St. Paul to Dubuque is the product of corrasion unaided by rock-fracture; the Grand Canyon of the Colorado, foremost among the wonders of a wonderful mountain land, was carved by the sand-reddened river despite the obstructions thrown in its course by earth movement. This appalling chasm is commonly regarded as the most impressive illustration of the efficiency of rivers in trenching the rocky earth crust, yet attentive reading of the geologic record shows that even lesser rivers have wrought even greater results. Thus, during a long-past age the Susquehanna and the Potomac not only carved canyons twice as deep, though perhaps never so steep of wall, as that of the Colorado, but continued their work until the cliffs, spurs, ridges, plateaus, divides, and indeed nearly all of the vast rock mass rising above river level, were borne bit by bit into the Atlantic to build a new land, part of which lies between the "fall line" and the coast. The mountain peaks are shaped by the storm, the mountain gorges are carved by storm waters; the rugged hills and crags are rugged, not because of earth movements, but because of the activity of running water stimulated by steepness of slope; and the broader valleys are more slowly fashioned by the streams winding through their bottoms.

There is an important result of river work whose origin may be recognized through observation or deduced from geologic principles with equal facility; namely, the alluvial plain by which the channel is commonly flanked. The overflowing Nile spreads a veneer of sediment over its delta, and the Egyptian fields are annually fertilized thereby. Before the advent of man the floods of the Mississippi in like manner distributed sediment over the broad delta plain stretching from the mouth of the Ohio to the Gulf; and there are to-day intelligent planters in the levee-protected parishes of Louisiana who hold that the interests of the delta country would be best promoted by allowing the great river and its distributaries to discharge their waters and to spread their sediments freely over the adjacent lowlands.

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Lesser rivers in like manner overflow their riparian plains during freshets, dropping sand and silt in depressions and on gentle slopes; and during the great flood which comes once in a decade or once in a century, the entire plain is flooded from bluff to bluff, and the receding waters leave great sheets of river mud, together with some fresh-cut channels and more banks and bars of silt. It is true that streams of exceptionally great declivity, such as mountain torrents, corrade their channels so rapidly that each freshet falls short of the last; but these are commonly without alluvial plains, and so form a class by themselves. It is patent to every observant resident on rivers and smaller streams conditioned in the usual way, that the freshet waters encroach upon the alluvial plains, now here, now there, sometimes over their entire extent, and that, while part of the material is carried far away, part is transported only a few rods, and some that has been brought from a distance is deposited. It is evident, too, to the resident who continues his observations for a decade or a generation, that the degradation, shifting, and deposition of material is commonly such as to preserve the general form of the plain, and to maintain its general relation to the low-water channel on the one hand and to the bounding bluffs on the other.

The flood sediments of the Nile and the Mississippi, and the analogous deposits of other rivers, are sands, silts, muds, perhaps gravels, assorted and distributed by currents and eddies in a manner depending upon the configuration of the overflowed plains. Commonly these materials are identical in character with those of which the entire plain is built, and analogous to them in assortment and distribution. The fisherman by the river side and the husbandman in the riparian field, as well as the systematic student, recognize the substantial identity of the older and newer alluvial deposits, and ascribe both to the agency of the river. The *fellah* on the Nile, the planter on the lower Mississippi, and the trucker on the mill stream perceive that the annual deposits assume the form of sheets of stratified sediment, here coarse, there fine, now thick, now thin, sometimes interrupted, and that successive sheets may be separated by layers of vegetal matter. He commonly perceives, too, that these structural con-

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ditions of the surface are repeated in all directions in the mass of material that constitutes the alluvial plain.

All observant dwellers on alluvial lands are aware that the immediate river banks are higher than the more remote portions of the plain. During freshets the water is charged with detritus, and in the swift current of the main channel this detritus, being kept afloat by the whirls and eddies of the raging waters, is transported freely; but as the flood rises, and as the waters escape from the channel over the plain, the current is checked by the shoaling of the water and by the brakes of the bottoms, and so the contained detritus is in part deposited. Now this deposition takes place most rapidly over the lands in the immediate vicinity of the main channel, and in consequence the immediate banks, being most rapidly built up, soon come to be the highest lands in the entire plain. The land may even incline from the river banks to the bases of the distant bluffs. Thus are built low, broad, natural levees like those of the intricate network of tributaries and distributaries in the Mississippi delta; and thus the stream channels are rendered so unstable that, as time passes, they shift from side to side of the alluvial zone.

The secular shifting of great river channels is recorded in the conformation of the plains. The abandoned channels of the upper Mississippi, for example, are plainly marked by "sloughs," or minor channels, through which part of the current passes; by meandering moats clogged with alluvial sands at one end or at both ends; by crescentic lakes completely dissevered from the main and minor channels; and by irregular depressions and morasses scattered here and there over the plain. That these are the tracks left by the wandering river, is shown by the observations of the river pilot as well as by the inferences of the geologist. When the channel is first diverted, during some great flood, a part of the water flows for a time through the old channel; but the new was selected because it offered a lower level or a shorter course, and it therefore gains on the old until the greater volume of water flows through it. The new passage is rapidly widened by the swift current, while in the old the current lags and the indolent waters drop their sand and silt; so the old channel becomes a slough. Then, during some freshet, the

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shifting currents build a bar across an extremity of the old channel, and it is finally abandoned save during the highest floods. As time goes on, the other extremity is dammed, and the slough becomes a moat. Next, the ever-wandering river shifts far upon its plain, and may leave the moat miles away from its main channel, to be gradually transformed into a lake of clear water, perhaps fed by two or three streamlets and a dozen springs from the adjacent bluffs, and drained into the main river, or into one of its numberless sloughs, through a deep-cut runnel in the alluvial sands and silts. Finally the lake is filled with the sediment delivered by its streamlets and brought over its banks during freshets, and only an indefinite impression and a meandering stream way remain to tell of its former existence. Thus each cycle of shifting is completed.

One of the earliest generalizations in geologic doctrine grew out of observations on the manner in which rivers build alluvial plains. As such plains lie within reach of the river and suffer overflow by freshets, or at least by great floods, geologists have applied to the alluvial plain the name "flood plain." Nature has thus inscribed in the valley of each river, and in that of every smaller stream that is conditioned in the usual way, a conspicuous and ineffaceable flood mark. This flood mark is the fertile bottom land of which the pioneer dreamed, the alluvial land upon which the early settlement was founded and on which the modern city is located, the flat lowland over which the engineer builds railways, the zone upon which population is massed.

The flood plains of scores of rivers are annually overflowed. The floods of the Nile are seldom disastrous, because the customs and industries of the *fellahin* are adjusted to the conditions growing out of the remarkably uniform cylce through which that river annually passes. The great rivers of the Orient are more erratic, and once or twice, or even five times, in each decade the capricious Ganges, the powerful Brahmapootra—"terrible son of the Brahma"—the muddy Yang-tse-Kiang, and the loess-tinted Hoang-Ho, burst their barriers, devastating the lowlands and destroying human lives by scores, or even by thousands. The annual cycle of the Mississippi is far less uniform than that of the Nile, the floods vary widely in date and in height,

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and prevision is handicapped by the levees, both natural and artificial, which protect the lowlands—until the *crevasse* opens. Yet the customs and industries of the delta country are so well adjusted to the conditions growing out of the variable regimen of the river that the losses from overflow involve property rather than life. The planters, with their families and dependents, resort to upland habitations, take refuge on the higher levees and "tow heads," or fly to the "gin houses," whose strong supports of framed timbers resist the force of the flood. And the watchful planter, who has learned the strength and the weakness of the mighty river, controls it by a sand bag here, a barrow of earth there, a handful of knot grass yonder; for if the feeble but timely check be not applied, the waters quickly gain such strength as to defy the skill of engineers and the wealth of States, as at the Bonnet Carré, the Nita, and other *crevasses*.

Every-day experience shows that floods are not confined to the greater rivers. They affect as well the smaller ones and their tributaries, down to mill streams and even to storm runnels; and the smaller streams are so many that the aggregate effect of their floods is large. Once or oftener during each decade a cry of distress comes from Cincinnati, for the basements of business houses built upon the flood plain are inundated and the residents of the city front are driven from their homes by the prodigious floods of the Ohio; once or twice in each decade East St. Louis and the part of St. Louis standing on the Mississippi alluvium are flooded; from three to five times in each decade the trans-Mississippi traffic at Dubuque is stopped because the flood waters submerge the railway tracks and extinguish the locomotive fires; and no year passes without records of disaster in dozens of towns and villages built on the flood plains of smaller streams. And the flood not only works destruction directly; it sows the germs of malarial and enteric disorders by which human life is shortened.

The experience of a decade shows that exceptional floods occasionally inundate a part of the flood plain which the usual vernal freshet barely reaches. On May 27, 1881, passengers on the first train south from Council Bluffs after a memorable freshet in the Missouri River, viewed an impressive but pitiable spectacle. The extensive bottom land was plastered with mud

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and sand; sites of farm houses were marked by piles of *débris* and by ruined chimneys; staunch barns were undermined, tilted, and rent with unequal settling, their doors and lower planking were torn away, and banks and bars of rotting grain marked the direction of the flood; the great corn cribs, hundreds of feet in length, were represented only by heaps of half-decayed and sprouting corn; the fences were reduced here to scattered timber, there to tangled loops of barbed wire clinging to the stronger posts and clasping the carcasses of cows, horses, and swine; the railway track of a month before was scattered to right and left in hundred-yard links of rails and ties, in bent and twisted rails still grasped by a tie or two, or in scattered ties and broken fish plates—in short, the fair land of a month before was replaced by a picture of utter desolation, and the air was poisoned by reeking mud, rotting grain, and decaying flesh. This is but one of many reminders that man may not encroach upon the domain of a river with impunity.

The recorded experience of a century shows that floods unprecedented in memory or in written history sometimes come. Throughout May, 1889, the rainfall in the drainage basin of the Potomac River was exceptionally heavy and continuous, and the ground became saturated to an exceptional degree; and during the closing days of the month heavy showers or persistent rains chanced to fall in the basins of the main stream and its tributaries in such order that the resulting freshets culminated simultaneously. The consequence was an unprecedented flood. The water rose from six to eight feet above the level reached by the highest flood previously known; the canal and railway skirting the river were washed out at many points, so that traffic was stopped for many days on the railway, and the canal was so nearly destroyed that it has not yet been restored; lock houses supposed to be far beyond the reach of the highest freshets, and locks supposed to be indestructible, were swept away. Over the site of "the log dam"—a structure at Great Falls designed to protect the canal from great freshets—standing above all previous flood marks and above the flood plain of the river as well, the water rushed in a seething torrent seven or eight feet deep, sweeping away the woodwork and most of the masonry of the

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structure. The broad slack-water estuary at Washington was transformed into a rushing tide which the most powerful steam tugs were unable to stem, and which carried schooners into the broader estuary below in spite of the aid of tugs and anchors; and the water rose in the city until boats plied on Pennsylvania Avenue between the Capitol and the Treasury, and until cellars and basements were flooded and stores of goods were destroyed in the very heart of the capital. Measurements showed that the discharge was at the rate of more than 600,000 cubic feet per second—a discharge at least one and one third times that of the greatest freshet previously recorded, nearly 40 times that of the average for the memorably wet season of 1889, and nearly 600 times that of minimum low water in the same river. Fully to appreciate this flood, it should be remembered that while the drainage basin of the upper Potomac is less than one per cent. of that of the Mississippi, the discharge during this flood closely approached the mean annual outpour of the great river. The builder of a bridge is not satisfied to make his structure strong enough to bear the expected load, but provides for the unexpected by applying "a factor of safety" of three, or five, or even ten times the anticipated strain; and unprecedented floods like that of the Potomac during 1889 remind builders upon the flood plains of rivers that their structures too require a factor of safety.

The lessons of a millennium of observation, those of scientific principle, and those of current experience, are all the same; but they are either carelessly conned or recklessly ignored by short-sighted men. The spider weaves her web across the well-trodden pathway, to be rent and destroyed by the next passer; the ant, despite its high insect intelligence, persistently burrows in the roadway, unchecked by the passing wheels, until its little life is crushed out; the field bunting busies herself in building a nest in the stubble, regardless of the approaching turns of the plow, which must shortly wreck the tiny domicile; the squirrel hides his hoard of nuts a rod from the brink of an advancing railway cut, where it must be undermined on the morrow. Better things might be expected of reasoning man; yet, with equal faith in the fixity of the earth and with equal blindness to the inevitable, he builds his house upon the river sands below nature's unmistak-

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able flood mark. The contemporaries of Daniel Boone and Davy Crockett located their log cabins on the flood plains a yard below lodged driftwood, and their descendants still defend the preemption despite the annual inundation. Along the Ohio and in the lower Mississippi region, scores of pioneers made their homes on the very spots on which their flood-borne flatboats grounded, and were naively surprised when the waters of the succeeding Spring washed their floors. During the past Summer a residence on an island in Reelfoot Lake was placed 10 feet above low-water mark, while the mud of the 1890 flood still coated the neighboring cypress boles 18 feet above the lake. Verily, the short-sighted dumb creatures may find exalted precedents!

The first requisite for protection against a maleficent agency is just appreciation of its magnitude; the second is acquaintance with its mode of operation. The magnitude of the evils of fire, famine, war, and pestilence has long been appreciated, and their modes of operation have been so thoroughly studied that means of protection have been devised; but, while the magnitude of the flood was appreciated in the olden days, its operations were not analyzed until men, blinded by the conceit born of successful conquest in other directions, forgot its power and crowded into its proper paths, much in the same way that the devotees of a ghastly cult threw themselves before their Juggernaut.

Yet the ways of the flood are now so well known that its ravages may easily be escaped, if only its potency is appreciated. River floods may be controlled, expensively by storage reservoirs for storm waters and melted snows (which should be utilized also for irrigating lands and as sources of power), partially by forest-planting about head waters and by deforesting the deltas and lower flood plains, and temporarily by levees and cut-offs. But, under existing social and commercial conditions, these methods, which might indeed be applied locally, will probably not be adopted, either during this century or the next, over the 150,000 square miles of bottom lands skirting the minor rivers and mill streams in the eastern United States. Still, floods may be successfully opposed or escaped. Railways and wagon roads may and must be laid on the flood plains of rivers; but the embankments, and trestles, and bridges should be raised not only

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above the latest freshet mark, but well above the great natural flood mark found in the plain itself, and the reciprocal effects of embankments and other structures on future freshets should be cautiously reckoned. Farms may be and ought to be located on fertile bottom lands enriched by annual or decennial overflow; but the farmer should dig deep for his foundations and build his superstructures strong and high. On every flood plain of eastern America he should provide for the loss of crop and fences once in three, or five, or ten years; and both common humanity and economic policy urge that dumb beasts should be pastured and fed on the uplands, so that the fertile river bottoms may be devoted to their best use, namely, the production of plant crops. Cities and towns ought not to be built on the flood-ridden and miasmatic lowlands; yet as they have been in the past and will be in the future, the townsman, like the farmer, should build high and strong, and hold himself ready to remove his family and carry his goods to upper stories. And the flood-swept bottom lands of the American rivers afford opportunity for a kind of business curiously neglected in the past, though destined to success at no distant day; namely, insurance against floods.

The great desideratum is general recognition of the facts—which are demonstrated by the observations of thousands and gainsaid by none, though ignored by multitudes—that rivers bear their own flood marks in the alluvial plains by which they are skirted, and that men occupy these plains at their peril.

W J McGee.

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